# INVENTORY OF INDUSTRIAL SITES PRODUCING OR USING COAL TAR AND RELATED TARS IN ONTARIO

## VOLUME I

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Environment
Ontario

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Minister

INTERA

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# Inventory of Industrial Sites Producing or Using Coal Tar and Related Tars in Ontario

## Volume I

Prepared for

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Waste Management Branch
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FINAL REPORT

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## EXECUTIVE SUMMARY

This report in two volumes describes the results of an inventory and preliminary assessment of potential environmental impacts of industrial sites producing and using coal tar and related tars in the Province of Ontario.

This study is intended to continue the inventory and assessment process started by the "Inventory of Coal Gasification Plant Waste Sites in Ontario" conducted in 1987 for the Ontario Ministry of the Environment. The coal gasification plant inventory study was prompted by the discovery in 1986 of buried coal tar wastes at two sites in Ontario and identified 41 former sites. Tars and sludges produced by coal gasification plants and produced or used by the industries identified in the current study contain polynuclear aromatic hydrocarbons (PAH) and light aromatic hydrocarbons. Several compounds in these chemical groups have been documented as cancer causing. Adverse human health effects from exposure to these chemicals is primarily by inhalation and dermal contact.

Following the earlier study, a four phase approach was used to complete this study. The phases were: 1) a historical record search to identify types of industries and sites producing or using coal tar and related tars; 2) site reconnaissance visits to each former site to determine land use and evidence of buried waste; 3) assessment of potential environmental impact at former sites and 4) where appropriate development of recommendations for further action.

The historical record search identified six types of industrial operations that were likely to have produced or handled significant volumes of tar. These operations were: coal tar

## EXECUTIVE SUMMARY (cont'd)

distillation plants, creosoting plants, roofing felt and tarred paper products manufacturers, by-product charcoal and coke oven plants of the iron and steel industry, industrial manufactured gas plants and wood distillation plants. Forty-four industrial sites in 25 different communities were identified from these six types of industries. Thirty-five of the sites were former operations and nine of the sites are currently active. The list of these former and active sites together with their street address and approximate years of operation are given in the Table accompanying this summary. The distribution of these former and active sites in Ontario is shown on Map 1 in this report.

Site reconnaissance visits were made to all but one of the former sites identified from the search of historical records. The primary purpose of the site reconnaissance visits was to identify any visual and olfactory evidence of buried wastes and any environmental impacts that may be related to the wastes. Because many of the former sites are located in developed areas, the site reconnaissance visits included inspection of sewers, basements and building sumps. Information collected from site inspection, from the record search and from municipalities were recorded on a fact sheet for each site.

Using data recorded on the fact sheets and a set of criteria developed previously for the "town gas" plant study (INTERA, 1987), a qualitative assessment of potential environmental impacts was performed for each former site. The assessment criteria are based on characteristics of the site, evidence of buried wastes and characteristics of potentially impacted resources. Options for further actions at each former site are developed based on the assessment of potential environmental impact. Active sites were not subject to detailed on-site inspections or assessment of potential environmental impact as per the terms of reference of this study. In some cases, there are environmental issues at active sites identifed in this study but at all of these sites investigations are underway and the sites are being looked at by the Ontario Ministry of the Environment.

As a minimum, options for further action at every former site include notification of municipalities and current property owners that tars containing PAH may be buried on-site.

At twenty-three of the thirty-five former sites, potential environmental impacts are considered minimal based primarily on a lack of evidence of buried waste.

At six of the identified sites there is evidence of tar wastes in the subsurface but potential environmental and human health impacts are minimal because of a lack of receptors for impact from the waste. These sites include Barrett Co. - Toronto, Domtar - Toronto, Paterson/Barrett - Toronto, Paterson - Toronto, Cyanamid - Niagara Falls and Donald Wood Products - Donald. Future excavation or development at these sites should be conducted with caution.

At six of the sites with evidence of tar wastes there is potential for environmental impact and site specific recommendations are developed for these sites to either more clearly define the chemical nature and physical extent of the wastes or to minimize potential impacts. These sites include Currie Products - Ottawa, Canada Creosoting - Sudbury, Canada Creosoting - Thunder Bay, Calder Creosoting Co. - Sioux Lookout, Domtar - Cornwall, and Standard Chemical - South River.

## List of Industrial Sites Producing and Using Coal Tar and Related Tars in Ontario

| Community | Company | Address | Approximate Years of Operation |
|---|---|---|---|
| **Coal Tar Distillation Plants** | | | |
| Hamilton | Currie Products | 350 Wentworth St. N. | 1978-present |
| Hamilton | Dominion Tar and Ammonia,<br>Hamilton Tar & Ammonia,<br>Hamilton Tar Products,<br>Currie Products | East side Caroline between Mulberry & Sheaffe Sts. | 1901-1977 |
| Hamilton | Dominion Tar & Chemical,<br>Domtar Chemicals | West side Strathearne Ave. north of Burlington St. | 1950s-present |
| Ottawa | Hamilton Tar Products,<br>Currie Products | 170 Lees Ave. | 1922-1948 |
| Sault Ste. Marie | Dominion Tar & Chemical,<br>Domtar Chemicals | South of Baseline (Wilde Ave.) and Dryden | 1911-present |
| Thunder Bay (Port Arthur) | Northern Tar & Chemical,<br>Northern Wood Preservers | 2nd Ave. & Water Front S. (Maureen St.) | 1938-present |
| Toronto | Barrett Co. | 675 Lakeshore Blvd. E. | 1922-1960s |
| Toronto | Dominion Tar & Chemical/ Domtar Chemicals | 801 Lakeshore Blvd. E. | 1925-1974 |
| Toronto | J.D. Paterson Co./ Barrett Co. | 5-33 Hahn Place | 1900-1922 |
| Toronto | Imperial Varnish & Colour | North side Lakeshore Blvd. E. between Logan and Morse Sts. | 1900-1960 |
| Windsor | Ford Motor Co. | Between Riverside Dr. E. and Wyandotte, west of Belle Isle (Belleview) | 1923-1950s |

## List of Industrial Sites Producing and Using Coal Tar and Related Tars in Ontario (cont'd)

| Community | Company | Address | Approximate Years of Operation |
|---|---|---|---|
| **Creosoting Plants** | | | |
| Sioux Lookout | Canada Creosoting Co.<br>Calder Creosoting Co. | 1.6 km east of First Ave. | 1928-1960 |
| Sudbury | Canada Creosoting Co.<br>Domtar Chemicals | South side Lorne St. Between Sutherland & Bulmer Sts. | 1925-1964 |
| Thunder Bay (Fort William) | Canada Creosoting Co.<br>Dominion Tar & Chemical | North of Carpenter St. East of 105th St. on McKellar Is. | 1940-1946 |
| Trenton | Canada Creosoting Co.,<br>Domtar Chemicals | 126 Marmora St. | 1913-present |
| **Roofing Felt and Tarred Paper Products Manufacturers** | | | |
| Brantford | Brantford Roofing Co. | 22 Sydenham St. | 1906-1950s |
| Cornwall | Domtar Construction Materials Ltd. | Northwest corner Seventh & Cumberland Sts. | 1940-1968 |
| Hamilton | Building Products Ltd./ Bird and Son Division | 70 Beach Rd. at Gage | 1910-1954 |
| London | Canadian Roofings Ltd./ London Roofings/Viceroy Manuf./Bishop Asphalt Papers | 1350 Trafalgar Rd. | 1939-1957 |
| Toronto | Paterson Manufacturing Co. | 297-307 Front St. E. | 1882-1899 |
| Toronto | Toronto Asphalt Roofing Manuf. Co. | 15 Oxford Dr. | 1922-1950 |
| Windsor | ACME Roofing Co. | Southeast corner Walker and Edna Sts. | 1917-1923 |
| Windsor | Canadian Roofing Manuf. Ltd. | Southeast corner McDougall and Shepherd Sts. | 1914-1921 |

## List of Industrial Sites Producing and Using Coal Tar and Related Tars in Ontario (cont'd)

| Community | Company | Address | Approximate Years of Operation |
|---|---|---|---|
| **By-Product Charcoal and Coke Oven Plants of the Iron and Steel Industry** | | | |
| Hamilton | Dominion Foundries & Steel, Dofasco | North of Burlington E. between Kenilworth N. & Ottawa N. | 1951-present |
| Hamilton | Steel Co. of Canada | Wilcox St. | 1918-present |
| Nanticoke | Steel Co. of Canada | Regional Rd. 3 and Lake Erie | 1981-present |
| Sault Ste. Marie | Algoma Steel Ltd. | South of Baseline & Goetz Rd. | 1899-present |
| **Industrial Manufactured Gas Plants** | | | |
| Cambridge (Preston) | Pattinson Woollen Mill | 498 Eagle St. N. | 1870s-1890s |
| Ottawa | Dominion of Canada Fuel Testing Laboratories | 552/562 Booth St. | 1911-1940s |
| Niagara Falls | American Cyanamid Co. (Fertilizer Works) | Stone Rd. and Fourth Ave. | 1916-1920 |
| North Bay | Pintsch Compressing Co. | 535 Stanley St. | 1910-1956 |
| Toronto | Pintsch Compressing Co. | Foot of Peter St. east of Spadina | 1906-1960 |
| Windsor | Union Natural Gas Co. of Canada | Northeast corner Howard Ave. and E.C. Row North Service Rd. | 1929-1950s |
| **Wood Distillation Plants** | | | |
| Deseronto | E.W. Rathbun, Standard Chemical Co. | Main & First St. | 1890-1920s |
| Donald | Donald Wood Products, Standard Chemical Co. | Part Lot 6 and 7, Concession 1, Township of Dysart, Haliburton County | 1908-1945 |

## List of Industrial Sites Producing and Using Coal Tar and Related Tars in Ontario (cont'd)

| Community | Company | Address | Approximate Years of Operation |
|---|---|---|---|
| **Wood Distillation Plants** | | | |
| Fenelon Falls | Standard Chemical Co. | Francis St. and Cameron Lake | 1903-1916 |
| Lindsay | Canadian Industrial Alcohol Co. Ltd. | North side Eglington Rd. near Scugog River | 1930-1950 |
| Lindsay | Hodgson Bros. Chemical Co. Ltd. | St. Paul and Deniston Sts. near Scugog River | 1919-1930s |
| Longford Mills | Standard Chemical, Iron and Lumber Co., Standard Chemical Co. | Lot 20, Broken Frontage Rama Township | 1900-1943 |
| Parry Sound | Standard Chemical Co. | 300 m north of Isabella between railway tracks & Georgian Bay | 1909-1925 |
| Sault Ste. Marie | Algoma Steel Corp. Standard Chemical Iron & Lumber Co., Standard Chemical Co. | Near St. Mary's River, South of 3rd St. | 1911-1928 |
| South River | Standard Chemical, Iron and Lumber Co., Standard Chemical Co. | 1 km east of Village on South River | 1907-1967 |
| Thornbury | Thornbury Reduction, Standard Chemical Co. | Northeast corner Mill and Bay Sts., at Georgian Bay | 1916-1925 |
| Trout Creek | Dominion Wood and Lumber Co. | Concession 1, Parcel 3498, near Hwy 11 east of railway | 1920s |

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# 1. INTRODUCTION

## 1.1 BACKGROUND

In 1986, buried coal tar wastes were discovered at two abandoned coal gasification plant sites in two urban areas in Ontario. Because these wastes posed a potential impact on human health and safety the Ministry of the Environment commissioned a study in 1986 to identify and assess the potential environmental and human health and safety impact of former manufactured gas plant waste sites in the Province of Ontario. A report entitled "Inventory of Coal Gasification Plant Waste Sites in Ontario" Volumes I and II, dated April, 1987 was produced from this study and addressed plant sites which produced coal tar wastes as a result of manufacturing coal gas for municipal consumption. The report (INTERA, 1987) identified 41 former coal gasification plant waste sites in 36 different communities in Ontario and has formed the basis for further investigations and remedial actions at many of these sites. The report also identified several other former industrial sites that produced or handled coal tar or oil tar and may also pose similar environmental concerns as coal gasification plant waste sites. These industrial sites are the subject of this study.

The inventory of industrial sites producing and using coal tar and related tars in Ontario is intended to continue the inventory process. The information collected during this study is expected to be of use to municipalities, land owners and developers and, as in the earlier study, may form the basis for further investigations and possible remedial actions at individual sites.

## 1.2 OBJECTIVES

The objectives of this study were threefold:

i) establish an inventory of industrial sites (both active and former) that produced and used coal tar and related tars in the Province of Ontario;

ii) determine the potential impact on human health and safety and the environment of each identified former industrial site;

iii) where appropriate, develop recommendations that would lead to actions which would more clearly define the chemical nature and physical extent of wastes at specific sites.

A four phase approach was adopted to meet the study objectives:

Phase 1 - Review of historical records;
Phase 2 - Site reconnaissance visits;
Phase 3 - Determination of likely potential environmental impact;
Phase 4 - Development of recommendations for further actions.

More detailed descriptions of the study approach and each work phase are provided in Section 2 of this report.

## 1.3 SCOPE

This report describes the results of a study which provides an inventory and assessment of industrial sites producing and using coal tar and related tars in Ontario. The inventory part of this study identifies both former and currently active industrial sites that produced and used coal tar and related tars. Active sites were identified to make the inventory complete and also because several of the active sites were operational pre-1950 when industrial operations were less concerned with environmental impacts than they are today. Assessment of likely potential environmental impact was completed for each former site, but not for currently active sites as per the terms of reference for this study. In some cases, there are environmental issues at active sites identified in this study, but at all of these sites, investigations are underway and the sites are being looked at by the Ontario Ministry of the Environment.

The initial focus of this study was industrial sites that produced and used coal tar. This focus was based on the results of the previous "town gas" inventory study that identified coal tar as the most important waste product at municipal coal gasification plants. In the early 1900s coal tar became a valuable commodity and supported a variety of secondary industrial activities including tar distillation, creosoting and wood preservation, varnish and coating manufacturing, roofing felt manufacturing, abrasives and electrode manufacturing, and a multitude of refined coal tar products (e.g., dyes, explosives, disinfectants, perfumes, etc). In fact, the modern organic chemical industry originated from the availability of refined coal tar products.

Because of the diversity of secondary industries engaged in the use of coal tar it was necessary in the course of this study to conduct an initial identification of such industries and subsequent screening of these industries to focus on those sites likely to have buried coal tar wastes.

The details of this identification and screening are discussed in Section 2 of this report. Based on this work, the following industrial sites are the focus of this study:

- coal tar distillation plants;
- creosoting plants;
- roofing felt and tarred paper product manufacturers;
- by-product charcoal and coke oven plants of the iron and steel industry;

- industrial manufactured gas plants including Pintsch, coal and oil gasification operations;
- wood distillation plants.

Coal tar distillation plants, creosoting plants, roofing felt and tarred paper product manufacturers utilizied coal tar as a raw material. Industrial manufactured gas plants, by-product charcoal and coke oven plants and wood distillation plants created coal tar, oil tar or wood tar as by-products or waste products in their operations. Oil tar from manufactured gas plants and wood tar from charcoal by-product/wood distillation plants are similar in chemical composition to coal tars because of similar combustion processes used in each industrial operation. Both tars contain volatile organics (benzene, toluene, etc.) and polynuclear aromatic hydrocarbons (PAH). The descriptions of the industrial processes and practices relating to the generation and handling of tar for each of the above industrial activities are provided in Section 3 of this report.

In this report, identification of previous industrial sites was generally restricted to those plants operational in the period post-1919. This starting date generally coincides with the development of secondary tar processing industries, (i.e., tar distillation plants, creosoting plants, roofing felt and tarred paper manufacturers) the start of by-product coke oven operations, Pintsch gas plants and wood distillation plants. The list of sites included in this report however has also been supplemented by sites from the pre-1919 time period, encountered in the course of research.

The inventory of industrial sites producing and using coal tar and related tars provided in this report is considered to be as complete as historical records will allow in the period post-1919 and generally to have identified all the important potential industrial coal tar plant sites in the Province of Ontario for both the pre- and post-1919 periods. It is likely that some small industrial coal tar plant sites operational in the period pre-1919 (i.e., roofing felt and coatings manufacturing, iron pipe dipping) have not been identified in this report. However based on the environmental significance associated with similar identified sites in both the pre- and post-1919 period in this report, these unidentified sites are not thought to be significant.

# 2. STUDY METHODOLOGY

## 2.1 PHASE 1 - REVIEW OF HISTORICAL RECORDS

The review of historical records was undertaken to:

- identify types of industrial operations producing and using coal tar and related tars in Ontario;
- review industrial processes and practices as they relate to tar production, handling and disposal;
- provide an inventory and description of former and active industrial sites.

The following sections outline the sources and methodology used to complete the above tasks.

### 2.1.1 Identification of Types of Industrial Operations

Initial research was conducted to identify the types of industrial operations producing and using coal tar and related tars in Ontario. This research was performed by reviewing a limited number of government reports and early industrial manuals and texts. Some of the more important source materials included:

- Canada Dominion Bureau of Statistics,
  Canada's Chemical Industries, Series 46-D-50,
  Ottawa (1947) by H. McLeod;
- Canada, Department of the Interior, Distillation of Hardwoods in Canada, Ottawa (1922);
- Canada, Department of Mines, Products and By-Products of Coal, Report 323, Ottawa (1915);

- The Industrial Applications of Coal Tar Products, London (1925) by H.M. Bunbury and A. Davidson;
- Coal Tar and Ammonia, Parts I and II, New York (1916) by G. Lunge;
- Manual of Industrial Chemistry, Volume II, New York (1926) by A. Rogers;
- "Coal Tar - Its History and Production", The Canadian Chemical Journal, Volume 2, March (1918) by C.W. Reynolds.

These texts, reports and papers identified a variety of industries engaged in the production and use of coal tar and related oil and wood tar in Ontario. An example of the variety of products and hence industrial operations based on coal tar is given in Figure 2.1. From these texts and other sources six types of industrial operations were identified as having the greatest likelihood to have left coal tar and related wastes in the ground.

These six types of industrial operations, listed in Section 1.3, were selected based on approximate size of operation, volume of tar generated or handled and a preliminary understanding of the tar handling and disposal practices.

### 2.1.2 Review of Industrial Processes and Practices

The six types of industrial operations were reviewed to investigate their technological processes and practices over the time period in which they operated in Ontario. The objectives of this work were to determine how tars were brought to or produced on sites within the industry, how they were handled there and if possible how they were disposed.

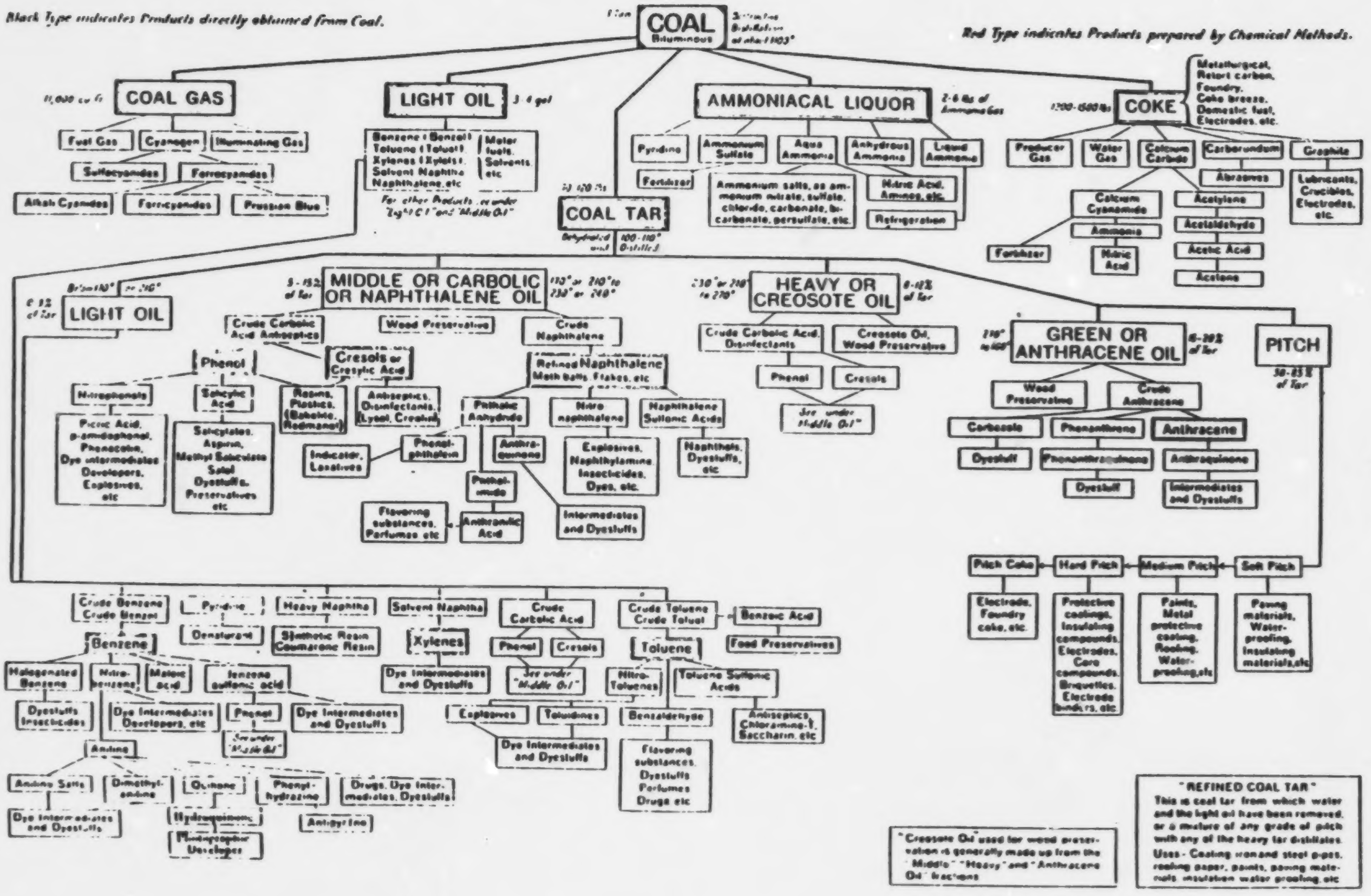
Black Type indicates Products directly obtained from Coal.
Red Type indicates Products prepared by Chemical Methods.
COAL
Bituminous
1 ton
Destructive Distillation at abt. 1100°
COAL GAS
11,000 cu ft
Fuel Gas
Cyanogen
Illuminating Gas
Sulfocyanides
Ferrocyanides
Alkali Cyanides
Ferricyanides
Prussian Blue
LIGHT OIL
3-4 gal
Benzene (Benzol)
Toluene (Toluol)
Xylenes (Xylols)
Solvent Naphtha
Naphthalene, etc
Motor fuels, Solvents, etc
For other Products, see under "Light Oil" and "Middle Oil"
AMMONIACAL LIQUOR
2-6 lbs of Ammonia Gas
Pyridine
Ammonium Sulfate
Aqua Ammonia
Anhydrous Ammonia
Liquid Ammonia
Fertilizer
Ammonium salts, as ammonium nitrate, sulfate, chloride, carbonate, bicarbonate, persulfate, etc.
Nitric Acid, Amines, etc.
Refrigeration
COKE
1200-1500 lbs
Metallurgical, Retort carbon, Foundry, Coke breeze, Domestic fuel, Electrodes, etc.
Producer Gas
Water Gas
Calcium Carbide
Carborundum
Graphite
Abrasives
Lubricants, Crucibles, Electrodes, etc.
Calcium Cyanamide
Ammonia
Nitric Acid
Fertilizer
Acetylene
Acetaldehyde
Acetic Acid
Acetone
COAL TAR
Dehydrated and
100-110° Distilled
LIGHT OIL
0-1% of Tar
MIDDLE OR CARBOLIC OR NAPHTHALENE OIL
5-15% of Tar
170° or 210° to 230° or 240°
Crude Carbolic Acid Antiseptics
Wood Preservative
Crude Naphthalene
Phenol
Cresols or Cresylic Acid
Nitrophenols
Salicylic Acid
Resins, Plastics, (Bakelite, Redmanol)
Antiseptics, Disinfectants, (Lysol, Creolin)
Picric Acid, p-amidophenol, Phenacetin, Dye intermediates Developers, Explosives, etc
Salicylates, Aspirin, Methyl Salicylate, Salol, Dyestuffs, Preservatives etc
Refined Naphthalene
Moth balls, Flakes, etc
Phthalic Anhydride
Nitro naphthalene
Naphthalene Sulfonic Acids
Indicator, Laxatives
Phenolphthalein
Anthraquinone
Explosives, Naphthylamine, Insecticides, Dyes, etc.
Naphthols, Dyestuffs, etc
Phthalimide
Flavoring substances, Perfumes etc
Anthranilic Acid
Intermediates and Dyestuffs
HEAVY OR CREOSOTE OIL
230° or 210° to 270°
8-12% of Tar
Crude Carbolic Acid, Disinfectants
Creosote Oil, Wood Preservative
Phenol
Cresols
See under "Middle Oil"
GREEN OR ANTHRACENE OIL
6-20% of Tar
Wood Preservative
Crude Anthracene
Carbazole
Phenanthrene
Anthracene
Dyestuff
Phenanthraquinone
Dyestuff
Anthraquinone
Intermediates and Dyestuffs
PITCH
30-85% of Tar
Pitch Coke
Hard Pitch
Medium Pitch
Soft Pitch
Electrode, Foundry coke, etc.
Protective coatings, Insulating compounds, Electrodes, Core compounds, Briquettes, Electrode binders, etc
Paints, Metal protective coating, Roofing, Waterproofing, etc
Paving materials, Waterproofing, Insulating materials, etc
Crude Benzene Crude Benzol
Pyridine
Heavy Naphtha
Solvent Naphtha
Crude Carbolic Acid
Crude Toluene Crude Toluol
Benzoic Acid
Denaturant
Synthetic Resin Coumarone Resin
Xylenes
Phenol
Cresols
Toluene
Food Preservatives
Benzene
Halogenated Benzene
Nitrobenzene
Maleic acid
Benzene sulfonic acid
Dye Intermediates and Dyestuffs
See under "Middle Oil"
Nitro-Toluenes
Toluene Sulfonic Acids
Dyestuffs Insecticides
Dye Intermediates Developers, etc
Phenol
Dye Intermediates and Dyestuffs
See under "Middle Oil"
Explosives
Toluidines
Benzaldehyde
Antiseptics, Chloramine-T, Saccharin, etc
Aniline
Dye Intermediates and Dyestuffs
Flavoring substances, Dyestuffs, Perfumes, Drugs etc
Aniline Salts
Dimethyl-aniline
Quinone
Phenyl-hydrazine
Drugs, Dye intermediates, Dyestuffs
Dye Intermediates and Dyestuffs
Hydroquinone
Antipyrine
Photographic Developer
"Creosote Oil" used for wood preservation is generally made up from the "Middle" "Heavy" and "Anthracene Oil" fractions
"REFINED COAL TAR"
This is coal tar from which water and the light oil have been removed, or a mixture of any grade of pitch with any of the heavy tar distillates.
Uses - Coating iron and steel pipes, roofing paper, paints, paving materials, insulation, water proofing, etc

Figure 2.1 Coal tar products obtained from coal and refined coal tar (after Rogers, 1926)

Technical works on each of the industries concerned were extensively reviewed. These works included Government of Canada reports and contemporary industrial and scientific texts and journals. These works were located in the National Library, Ottawa, the National Research Council, Ottawa, Canada Institute for Scientific and Technical Information, Ottawa and the Canadian Mineral and Energy Technology Library, Energy Mines and Resources Canada, Ottawa. The individual source materials for each industry are identified in Section 4 and listed in the bibliography at the end of this report.

### 2.1.3 Inventory Listing of Sites

A search of historical records post-1919 was undertaken for each of the six types of industries to provide a list of sites, and any historical information on specific site operations, plant layout, and period of operation. The historical source materials for this work can be grouped by use according to site location and site characterization tasks.

Site location sources for each industrial operation included a selection of central directory or summary works that identified the existence, duration of operation and exact location of the sites. In general these source materials included:

- Dominion Bureau of Statistics Reports on specific industries, for example:

    - Series 36-D-50, Paper Using Industries;
    - Series 46-D-25, Chemicals and Allied Products Industry;
    - Series 46-D-47, Hardwood Distillation Industry;
    - Series 46-501, Directory of Chemical Industries in Canada;
    - Series 45-203, Coke and Gas Industry;
    - Series 46-204, Coal Tar Distillation Industry;

- Ontario Bureau of Mines Annual Reports on industries using mineral products;
- Canada Trade Indexes published by the Canadian Manufacturers Association;
- Provincial, Regional and City Directories and Gazeteers;
- Miscellaneous government reports and industrial journal articles, describing industrial operations.

Once a site was identifed in a community, historical records were further reviewed to confirm site existence and to characterize the site by providing information on the plant layout and details of plant operation. Relevant historical sources for this work include:

- Fire insurance plans and maps from:
    - The National Map Collection, Public Archives of Canada, Ottawa
    - Map Collection, Archives of Ontario, Toronto
    - Map Collection, Metropolitan Toronto Reference Library
    - Regional Map Collection, University of Western Ontario, London
    - local museum and archive collections;
- Historical air photos from the National Air Photo Library, Ottawa;
- Historical newspaper articles and photographs describing industrial site openings or closures, available from local archives and museums;
- Contemporary miscellaneous texts, articles and journal publications containing information on specific sites.

Fire insurance plans from the four major collections and local collections were the main historical sources used to characterize sites. Preparation of fire insurance plans for Ontario communities commenced in the late 1870s and stopped in the late 1950s. Such plans however are not available for all communities in Ontario and in particular for several of the wood distillation plants which were located in remote areas. In many of these cases historical air photos from the National Air Photo Library, Ottawa provided less detailed but reliable characterization of the site. Historical air photos are available for many communities in Ontario from the late 1920s and 1930s.

## 2.2 PHASE 2 - SITE RECONNAISSANCE VISITS

Reconnaissance visits were made to all plant sites, except the Sioux Lookout site, identified from Phase 1 activities. The Sioux Lookout site was inspected during this study by local Ministry of the Environment officials. Site visits were made in March and April, 1988. The principal purpose of site reconnaissance and on-site inspection for former industrial sites was to identify any evidence of wastes by visual and olfactory inspection and any environmental impacts that may be related to the wastes. On-site inspections of active industrial sites were not performed in this study. The site reconnaissance visits of both former and active sites also served to identify on- and off-site land use, site conditions and site access for possible future investigations and to obtain photographs of and additional local information on the site. Site reconnaissance work undertaken as part of this phase did not involve subsurface investigations, such as drilling or soil sampling.

The approach to site reconnaissance for former industrial sites was to utilize a consistent and thorough inspection of the site in conjunction with available air photos, plant plans, and plans of underground utilities including storm sewers.

The data collected from site reconnaissance visits of former industrial sites included:

- Visual evidence of tarry and other wastes at surface and in the near surface;
- Olfactory evidence of wastes both on- and off-site;
- Visual evidence of water pollution in surface waters and groundwaters;
- Confirmation of current land use both on- and off-site;
- Resource characteristics including proximity to and usage of surface water and groundwater resources.

Data on current land use both on-site and off-site and resource characteristics were also collected during site visits to active industrial sites.

Because of the visual character of tarry wastes (see Section 4), these wastes were in principle relatively easy to identify at surface and in the near surface. These wastes also pose the most significant potential health and environmental impact. Other wastes such as cinders, ash, coal fines and charcoal are also readily identified but these materials pose little health or environmental hazard and were only used to confirm the location of the plant.

Odours are noticeable and characteristic at tar waste sites as a result of the presence of lower molecular weight volatile organics (i.e., naphthalene, benzene, toluene, xylenes) in tar wastes. Organic vapour concentrations of tar at 1 ug·L-1 (ppb) are detectable by sense of smell.

Visual evidence of water pollution by oily and tarry wastes was also evaluated. Because of the immiscible and denser-than-water properties of tars and sludges, natural and manmade catch basins, surface drainage ditches, storm water outfalls and natural seepage faces on soil and rock slopes were examined. Additional and important locations where these wastes may accumulate in developed areas are building sumps, tile drains and storm water sewers and sumps.

For former sites that have been developed, an effort was made to collect information or evidence of buried waste through soils reports, excavation reports and interviews with contractors associated with construction or redevelopment on or near the site.

## 2.3 PHASE 3 - ASSESSMENT OF POTENTIAL ENVIRONMENTAL IMPACT

Assessment of potential environmental impact of each former industrial site was performed using a fact sheet that describes site conditions and qualitative assessment criteria. Active sites were not subject to assessment of potential environmental impact, although fact sheets describing site characteristics, evidence of buried wastes and resources characteristics were completed.

### 2.3.1 Fact Sheet Description

The fact sheet approach was adopted for the purpose of presenting all relevant site specific information in a format that is consistent and comprehensive. The fact sheet utilized in this study is given in Figure 2.2 and is similar to one used in the INTERA (1987) study of coal gasification plant waste sites. The fact sheet is structured into several categories based in part on assessment criteria. The categories include site location, site identification, site characteristics, evidence of buried wastes, resource characteristics, and comments including any information on off-site waste disposal areas. The entries to the fact sheet are mostly self explanatory; however, a brief description is appropriate.

Figure 2.2 Fact Sheet for Survey of Industrial Coal Tar Sites

1. **Site Location:**

   City ______________________ Street Address ____________________________

   MOE Region ________________ ____________________________

   MOE District ______________ NTS Map Sheet ____________________________

   Historical Maps and Photos Available ______________________________________

   ______________________________________________________________________

   ______________________________________________________________________

   ______________________________________________________________________

2. **Site Identification:**

   Name ________________________________________________________________

   Type of Facility _____________________________________________________

   Operator(s) and Period(s) of Operation ______________________________

   ______________________________________________________________________

3. **Site Characteristics:**

   Size (when operated) _________________________________________________

   Present Land Use _____________________________________________________

   ______________________________________________________________________

   Planned Land Use _____________________________________________________

   Present Occupant(s) __________________________________________________

   ______________________________________________________________________

   Present Land Use Adjoining Properties ________________________________

   ______________________________________________________________________

   Underground Utilities ________________________________________________

   ______________________________________________________________________

Figure 2.2 Continued

Soil Conditions______________________________

Site Access______________________________

4. **Evidence of Buried Wastes:**

Operating Period______________________________

Excavation History______________________________

Visible Wastes______________________________

Odour ______________________________

Water Pollution______________________________

5. **Resource Characteristics:**

Surface Water______________________________

Proximity______________________________

Use______________________________

Groundwater, Proximity______________________________

Use ______________________________

Proximity of Existing Wells ______________________________

Site Investigations______________________________

6. **Comments/Remarks:** ______________________________

Site location is documented in terms of regional and local address. Regional location is identified by Ontario Ministry of the Environment region and district as well as city or town and National Topographic Service map sheet number. Local address is given as a municipal address using street and number and/or bounding blocks. Local plant location is also given on a city street map and shown on an historical map. Available historical maps and early air photos are listed on the fact sheet.

Each site is identified by a name that usually refers to the plant facilities and by the type of facility and operator(s) and period(s) of operation of the facility.

Site characteristics include the size of the plant and property (areal extent when operating), present and planned land use, present occupants or owners, and land use of surrounding properties. Description of underground utilities, soil conditions and site access are also provided in this category.

The evidence of buried wastes category includes duration of operations (longer operating periods are likely to generate more wastes), the history of excavation at the site and any reported or observed visible or olfactory evidence of wastes. Evidence of water pollution is also included in this category.

The resource characteristics category include identification of natural resources, such as surface and groundwater resources in the area of each site that potentially may be impacted by waste migration. Historical or on-going site investigations that provide additional information on each site are also noted in this category.

A comments and remarks section is also provided to allow description of important aspects of the site not covered by previous categories and to describe the disposition of plant wastes off-site.

This disposal includes that undertaken during plant operation and later during excavation and redevelopment. For most plant sites, the location and extent of off-site waste disposal is not well known. Most off-site waste site locations are only tentatively identified. Because of this uncertainty and the likelihood that other industrial wastes may have been disposed at such sites, off-site disposal areas were not subject to assessment of potential environmental impact.

### 2.3.2 Criteria for Assessment of Potential Environmental Impact

The criteria for assessment of potential environmental impact of former sites are listed in Table 2.1 and are grouped into three important categories: site charactistics, evidence of buried wastes and resource characteristic as utilized previously in the INTERA (1987) report. The three categories are further divided into a number of factors which are used to assess the potential environmental impact of each site. The approach to assessment of potential environmental impact of unexplored industrial sites is qualitative in nature reflecting the variable, uncertain and conjectural nature of much of the data. Therefore, qualitative scores of high, medium, and low are assigned for each of the factors. For some sites, data is of greater reliability as a result of recent subsurface investigations, but for many of the sites reliable information on subsurface conditions is not available, or at best is poorly reported. Given these considerations, quantitative assessment or ranking of sites with respect to potential environmental impact is not warranted. Also not all factors are expected to have equal weighting at all sites.

The rationale and assessment criteria for each factor are provided in the following paragraphs.

Table 2.1 Assessment Criteria for Potentional Environmental Impacts of Former Industrial Sites Producing and Using Coal Tar and Related Tar in Ontario

| Factors | Criteria for Assessment | | |
|---|---|---|---|
| Level | Low | Medium | High |
| Site Characteristics | | | |
| Size (when operated) | <1.0 hectares | 1.0-5.0 hectares | >5.0 hectares |
| Location | rural or sparsely populated | industrial or commerical area | residential or public use area |
| Current Use/Ownership | controlled access, industrial or commercial use | owned and used industrially or commercially with uncontrolled access | used residentially or publicly |
| Planned Use/Ownership | continued ownership and industrial or commerical use | sale for industrial or commerical use | sale or conversion to residental or public use |
| Potential for Excavation | no plans for redevelopment | possible redevelopment | redevelopment planned |
| Evidence of Buried Wastes | | | |
| Operating Period | <10 years | 10-25 years | >25 years |
| Excavation History | excavation, no wastes reported | no excavation or unknown | excavation, waste encountered |
| Visible Tar Wastes | none or very minor | minor pockets | extensive |
| Odour | none on-site | minor on-site | distinct on-site |
| Water Pollution | no visible presence | oily or discoloured water on-site | oily or discoloured drainage off-site |
| Resource Characteristics | | | |
| Surface Water Proximity | >1 km | <1 km but not adjacent | adjacent |
| Surface Water Use | industrial | recreational | drinking water |
| Groundwater Proximity | site directly on low permeability soils or bedrock, no aquifer present | site on permeable soils with confining layer above aquifer | direct groundwater connection to major aquifer |
| Groundwater Use | no wells in possible impacted areas | industrial or a few private wells | public water supply wells |

### 2.3.2.1 Site Characteristics

Size. This factor provides a good indication of the potential impact of a site in that a large site is more likely to be a problem than a small site. Large sites would tend to be associated with larger plants that would produce more waste and, therefore, have a greater potential for waste products to enter the environment. Large sites are considered to be greater than 5.0 ha (50,000 $m^2$) while small sites are less than 1.0 ha and these values represent the bounds for high and low scores.

Location. Plant locations are an important consideration in the assessment of a site because the location will determine the potential for human contact. Sites located in rural areas will have a low population density and, therefore, the potential population affected by a contaminant release will be small. Similarly, if the area is industrial or commercial, more people are likely to be affected. The highest ranking is given to a site that is now located in a residential or public use area.

Current Use/Ownership. This factor is used to assess public access and the potentially affected populations. If the site ownership is presently industrial or commercial, access may be limited and the potentially affected population is reduced. Conversely, if the site is residential or public, access will be uncontrolled resulting in a greater concern and a higher ranking.

Planned Use/Ownership. This factor considers the potential impact on future populations similarly to the current use/ownership factor. A high ranking is given to sites that have the potential for sale or conversion to residential or public use. Also a site planned for resale is, assuming all other considerations being equal, likely to be of greater concern from the standpoint of legal liability than a site that is not.

Potential for Excavation

This is an important factor in that it directly assesses the likelihood that buried wastes may be excavated and exposed and dispersed possibly through rupturing of underground tanks. From a health standpoint, wastes contained in tanks in the ground pose much less hazard than wastes exposed during excavation. Consequently, sites planned for redevelopment are of greatest concern whereas sites with no plans for redevelopment are of least concern.

### 2.3.2.2 Evidence of Buried Wastes

Operating Period. The time period over which the site was in operation can be used as an indicator of the magnitude of the waste problem. Sites with a long operating period will have generated more wastes and have a longer period of waste migration.

Excavation History. Excavation history is an important assessment factor in that it provides documentation as to the existence of buried wastes. The difficulty with this factor is that reporting of waste occurrence during past excavation is not consistent between sites. Sites with excavation and no reported wastes are of less concern than sites with no excavation which are in turn of less concern than sites where wastes were reported during excavation. The high criteria for this category is of additional concern in that excavation into sites containing wastes may have resulted in tank rupture and dispersal of wastes over a larger area.

Visible Wastes. This factor provides an assessment based on the visual identification of wastes from site inspections conducted as part of this study and from historical accounts. Sites with large areas of visible tar waste will present a greater hazard than those with no visible waste. Visible tar waste over a larger area will receive a high ranking.

Odour. Odours in the area of a site provide an indication of the presence and extent of wastes. With coal tar, oil tar and wood tar odours detectable in the ppb range, this method can provide a suitable site assessment method. Sites with distinct odours reported in the past or noticeable at present likely contain waste and are therefore of greatest concern.

Water Pollution. Presently visible or past reported surface water or groundwater pollution is an indication of an ongoing environmental impact and cause for concern. On-site ponded water that is oily or discoloured may be confined to the site property and receives a medium ranking. If the surface water or groundwater pollution is documented to have drained or seeped in the past or is suspected to be seeping presently to a surface water body, then the impact is more serious and a high ranking is recorded.

### 2.3.2.3 Resource Characteristics

Surface Water Proximity. The proximity of a site to a surface water body represents an important factor in the assessment of a site. A short distance to a river or stream results in a short travel distance for a contaminant release and therefore is an important assessment criteria. Sites adjacent to a surface water receptor are of greatest concern, whereas sites at distances greater than 1 km are of least concern.

Surface Water Use. If the surface water adjacent to a site is impacted by plant wastes, it is important to consider the use of the water within the potentially impacted area. Industrial use is unlikely to be affected by poor water quality but recreational or, more significantly, drinking water use represents a serious impact. Surface water in the area of the site used for drinking water is therefore of greatest concern.

Groundwater Proximity. The ease with which groundwater may be impacted depends on the permeability of subsurface materials and the distance to the water table. Sites located on low permeability materials such as clay or shale bedrock and that have no aquifer are unlikely to have extensive areas of groundwater contamination and warrant a low ranking. If the site overlies and is directly connected to a major aquifer, the potential exists for widespread migration of contaminants. In this case, sites would receive a high ranking. If the site is isolated from an aquifer by a confining layer, the aquifer has some measure of protection and receives a medium ranking.

Groundwater Use. Groundwater within the potentially impacted area that is used for public water supplies represents the most serious impact and therefore is of greatest concern and highest ranking. No groundwater use within the potentially impacted area is of least concern. A medium ranking is assigned to this factor if a few industrial or private wells are situated within the expected impact area.

## 2.4 PHASE 4 - DEVELOPMENT OF OPTIONS FOR FURTHER ACTION

Where appropriate, options for further action are developed for each site identified from Phase 1 activities. These options are developed based on site access, site conditions, the nature and disposition of wastes, the potential environmental impact associated with the wastes and perceived needs for additional information. The options for further action range from notifying and cautioning municipalities and land owners of the likely existence of buried wastes at each site to implementation of site investigations with the intent of resolving uncertainties in site characteristics and/or developing specific site remediation plans.

# 3. INDUSTRIAL PROCESSES AND PRACTICES

## 3.1 COAL TAR DISTILLATION

The first large scale distillation of coal tar began in 1838 in England and its product, then called creosote, was used for preserving timber. In the 1840s and 50s, the discovery of aniline dyes gave rise to an extensive coal tar distillation industry in Europe in the late nineteenth century which spread to America and to a modest degree to Canada as well. Canadian coal tar refiners and distillers, however could not compete with Germany and England in the manufacture of dyes and concentrated on the making of other coal tar products (Reynolds, 1918).

In Ontario the first refiners and distillers of coal tar obtained their raw material from "town gas" works. However it was only with the establishment of a by-product coke oven industry in Ontario (c1911) that coal tar distillation was put on a firm footing. The first refinery and distilling operation established in this regard was in association with the Algoma Steel Co. at Sault Ste. Marie and was later run by Dominion Tar and Chemical Ltd.

By 1920, the two principal distillers in the province were located in towns with ready access to coal tar produced by by-product coke ovens. Dominion Tar and Chemical in Sault Ste. Marie and Hamilton Tar and Ammonia in Hamilton. The leading products of Canadian coal tar distillers to the mid-1930s (see Figure 2.1) were roofing tars, road tars, crude creosote, crude carbolic acid, light oils, middle oils, timber preservatives, sheep dips, sprays, fungicides and insecticides. The light oils, occasionally some middle oils and many crude products were exported to foreign countries; there was no production of the higher grades of hydrocarbon compounds that could be obtained from these oils (Wilson, 1937).

Coal tar obtained by the distillers from gas works or by-product coke ovens was normally stored in covered vertical cylindrical steel tanks and occasionally stored in underground cisterns or wells constructed of brick or reinforced concrete.

In the early twentieth century, there were basically two methods of distilling tar in Canada: the vertical still and the horizontal still. Both stills were simple batch stills fitted with condensing arms at their heads from which various products of distillation were conducted into different receivers. By 1945, the technology of distilling apparatus had developed from simple batch stills with a capacity of 4000 to 10,000 gal of tar to sophisticated continuous tube stills of much greater capacity (30,000 - 100,000 gal of tar per day).

One or more of the following distillates are obtained when coal tar is refined by any of the primary distillation processes outlined above: light oil, middle oil, heavy oil (creosote oil) and anthracene oil (see Figure 2.1). These products may be further distilled in turn and separated into a wide variety of chemical substances. At the close of the primary distillation process, the residual product consists either of coal tar pitch, or else refined coal tar, depending on its physical characteristics. There is no sharp line of demarcation between the two, although, in general, residuals having a fusing point above 80°F are known as pitches, whereas those fusing below are considered refined coal tar. The characteristics of a given residual will vary with the nature of the tar, the particular method of distillation and the quantity of distillate removed.

When the distillation has been completed, the hot refined tar or pitch was run into coolers, and when the temperature fell to the desired level the product was either run into barrels or into a large rectangular concrete enclosure known as a "pitch bay", where it was allowed to solidify, later to be broken up and treated before use

(Abraham, 1945). These residuals comprised from 50 to 60% of the pre-distilled coal tar (Rogers, 1926). Barrels of refined coal tar and various grades of pitch were either used by the distillers themselves to manufacture items such as tarred felts, paving materials (tarvia), protective paints, etc. or sold to other businesses for similar uses.

## 3.2 CREOSOTING PLANTS

The use of coal tar creosote as a preservative for wood dates to the development of large scale coal tar distillation by Bethell in England in 1838 (Reynolds, 1918). The material was adopted by British railway engineers in the 1840s for the treatment of ties and timber bridges (Burt, 1852). In 1841 wood paving blocks impregnated with coal tar were first used in England. Indeed, both creosote and coal tar were used interchangeably or in combination for wood preservation from that time into the twentieth century (Canada Department of Mines, 1915).

Perhaps surprisingly, creosote was not used in Canada to any significant degree as a wood preservative for the treatment of railway ties, crossarms, poles, piles, mine timbers and wooden paving blocks until the 1920s. The first Canadian attempts to employ any type of wood preservative did not occur until early in the twentieth century. In 1910 plants were established at Fort Frances and Winnipeg to treat railway ties by a zinc-chloride-aluminum patent immersing system, another nineteenth century timber preservation method. By 1912 many pole-line companies had begun to use wood preservatives: one of several treatments they employed was to paint the butts of poles with creosote or hot tar to provide protective impregnation. About the same time, Canadian railway companies were beginning to realize the merits of treating wooden ties with preservatives. In 1912 a total of 1,818,189 of the railway ties used were chemically treated: this representated 8.5% of the total number of ties purchased in that year (Canada Forestry Branch Bulletin, 1912). Specialized creosoting plants emerged in conjunction with these developments.

By 1911 the Canada Creosoting Company Ltd. had opened a plant in Trenton, Ontario to produce creosoted railway ties, poles, crossarms, piles and wood paving blocks. In the years that followed, this company would establish three other plants in Ontario at Sudbury (1925), Sioux Lookout (1926) and Fort William (1940). In 1940, another firm - Northern Wood Preservers Limited - established operations in Port Arthur.

Creosoting plant operations were relatively simple. Large above-ground steel storage tanks were located on each site; these contained considerable quantities of the raw material for preservation treatment. This material could be creosote distilled from gas tar, wood tar, oil gas tar, producer gas tar or coke oven tar, but a mixture of coal tar and water gas tar distillates formed the bulk of the creosote used in North America by the 1920s. Refined tar (dehydrated tar) was also used by itself as a preservative material into the 1940s and perhaps later as well. Economy in the use of creosote was achieved by mixing it hot in the proportion of 80 parts creosote to 20 parts of tar and increasing slightly the pressure treatment time.

Well seasoned fabricated timber products were placed in a cylindrical steel vessel for treatment. This vessel was constructed in such a way that a vacuum could be obtained by pumping out the air. Creosote or creosote/tar oil previously heated to 35° - 50°C was allowed to enter the exhausted vessel. A pressure of between 100 and 180 psi was then applied by pumps to effect better penetration of the preservative and dehydration of the wood.

After an appropriate time had elapsed, the treated timber products were removed from the vessel and stored, awaiting shipment to creosoted timber suppliers or directly to users.

A flow chart of a typical modern wood preserving facility is shown in Figure 3.1.

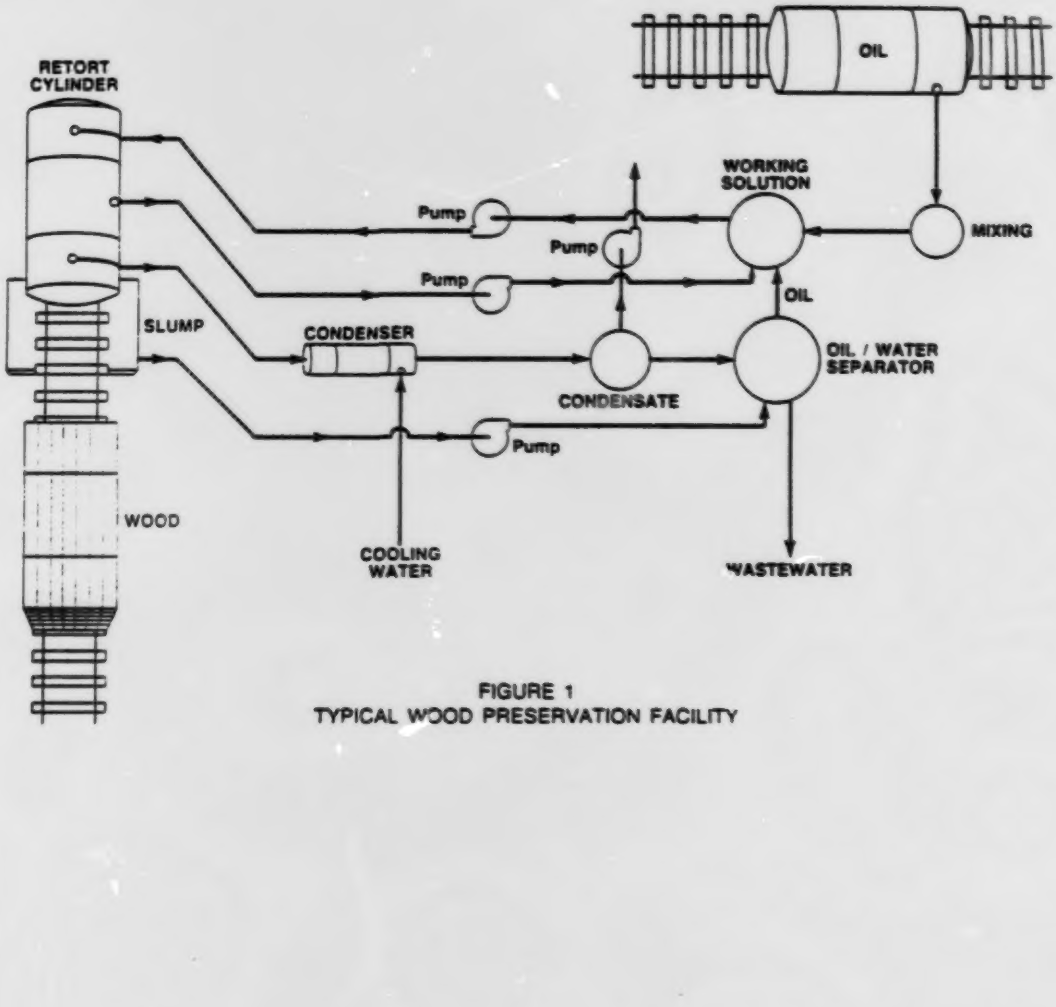
OIL
RETORT CYLINDER
WORKING SOLUTION
Pump
Pump
MIXING
Pump
SLUMP
OIL
CONDENSER
OIL / WATER SEPARATOR
CONDENSATE
Pump
WOOD
COOLING WATER
WASTEWATER

FIGURE 1
TYPICAL WOOD PRESERVATION FACILITY

| | | |
|---|---|---|
| Drawn by | Date | Flow chart for a typical wood preservation facility (after Bérand and Tseng, 1986) |
| Checked by | Date | |
| Revisions | Date | |
| | | |
| INTERA Technologies | | Figure 3.1 |

## 3.3 ROOFING FELT AND TARRED PAPER PRODUCTS MANUFACTURERS

Paper impregnated with tar and "tarred board" were used for roofing purposes in Germany as early as the 1820s. The first major commercial use for coal tar was in the manufacture of roofing felt, also a German discovery, which followed upon the erection of the first coal tar distillery in Germany in 1826 (Reynolds, 1918).

Tar impregnated composition or prepared roofing was introduced in the United States in the 1840s. In 1844-45 roofs were reportedly laid in Newark, N.J. which consisted of square sheets of ship's sheathing paper treated with a mixture of pine tar and pitch, and surfaced with sand. In 1847 Cyrus M. Warren used coal tar as a substitute for pine tar to soften the pine pitch and as a saturant for the paper. Square sheets were dipped by hand at first but soon machinery was devised for running the paper or felt in rolls through continuously operating saturators. Finally, in Buffalo, N.Y. coal tar was distilled down to a roofing pitch which was used to replace the more expensive mixture of pine pitch and coal tar. Before the end of the century, tarred roofing felt and paper making had become a major branch of the coal tar industry in America (Abraham, 1945; Lunge, 1916).

It is not known precisely when tar impregnated roofing felt or paper was first made in Canada, but it is not unreasonable to conjecture that it was shortly after the mid nineteenth century, recognizing that the building material had been used in America from the 1840s. Even so, it is unlikely that machine production on a significant scale was introduced before the last two decades of the century. The Paterson Manufacturing Co. of Toronto was one Ontario firm that began tarred roofing felt production in that period.

While never as large an enterprise as in the United States, the tarred roofing felt and paper industry of Canada grew in the 1920s and continued into the 1950s. Ontario manufacturers included firms that were refiners and distillers of coal tar, and those that were makers of building products. Currie Products Ltd. in Hamilton and Ottawa was an example of the former, Building Products Ltd. (Bird & Son Division) of Hamilton a case of the latter. The trade used both asphalt and tar as materials for impregnating felt and paper. In 1937 Canadian manufacturers consumed some 392,203 gallons of tar. During the 1930s, the chief tar using products were saturated rag felts and sheathings, building and roofing paper, liquid roof coatings and related products such as road materials.

Saturating compositions for impregnating felt included coal tar, water-gas tar and oil gas tar used either singly or in various combinations, or tempered to the proper consistency with corresponding pitch obtained by distilling the tar to expel the highly volatile oils. Tar products were used for manufacturing single-layered felt for construction "built-up" roofings and waterproofing membranes, and for manufacturing multiple-layered prepared roofings. Mixtures of tars and asphaltic products were also used. By the mid 1940s, the saturants most commonly used included soft coal-tar pitch, residual oil, soft residual asphalt and soft blown petroleum asphalt. Building paper was also impregnated with tar in the early 20th century, but by the 1940s coal tar pitch or asphalt were the more common substances (Abraham, 1945). In the mid to late 1950s, petroleum asphalt became the dominant saturant in prepared roofings.

Felted fabrics were imgregnated with tar or pitch saturating mixtures by one of the following procedures: 1) by running the preformed web through a tank of molten saturant, and impregnating it in an open or closed tank through a variety of processes at atmospheric pressure, in a vacuum or under pressure; 2) by subjecting the freshly formed web of felt, just as it comes off the felt machine, and while it is still wet, to the highly heated saturant, for the dual purpose of expelling the mositure and impregnating the felt; 3) by grinding or otherwise mixing fibrous substances with the saturant and then rolling the mass into sheet form between rolls, or else running the aqueous mixture over the felt machine; and 4) by first converting the saturants into an aqueous dispersion and adding the emulsion to the aqueous suspension of fibres in beaters, and then precipitating the tar on the fibres, after which the sheet was formed on a felt machine.

By the 1940s the method usually employed consisted of treating the preformed web with the melted saturant at atmospheric pressure. The "modern" apparatus for producing tar-saturated fabrics in this manner included a large saturator tank filled with tar which was fitted with a sump to catch overflow saturant which in turn was pumped to storage tanks for re-use. Early saturators were probably more crude, with a lot of tar being spilled in the saturation process. Building paper was saturated by a machine similar to that used for manufacturing tarred roofing felts. The web was saturated by running it through a tank of melted saturating material, usually heated by steam.

## 3.4 BY-PRODUCT CHARCOAL AND COKE OVEN PLANTS OF THE IRON AND STEEL INDUSTRY

Charcoal and coke were both used as blast furnace fuels for the iron and steel industry in Ontario. Charcoal iron works pre-date iron and steel plants in Ontario.

The province's first charcoal ironwork was at Furnace Falls (Lyndhurst) c1800-1802: it was followed by others at Normandale in 1817, 1822-47, Marmora in 1820-48, 1856 and 1866 and Hadoc in 1836. A combination of the abundance and accessibility of wood in the province, and the high cost of importing coal or coke, ensured that some Ontario ironworks continued to use charcaol as a blast furnace fuel into the twentieth century.

The early charcoal kilns established to service ironworks in Ontario were not by-product kilns and therefore did not recover wood tars and oils in the combustion process. By-product kilns first appeared in the later 1880s when the E.W. Rathbun Co. of Deseronto built a hardwood distillation works. Rathbun's enterprise expanded to charcoal making in 1898. Later re-organized and known as the Deseronto Iron Company (1899-1912), then the Standard Iron Company (1912-1919), the ironworks used charcoal as a blast funace fuel exclusively to 1906 and partially 1909 to 1917. The 1903 by-products of this facility included wood alcohol, acetate of lime, acetic acid, tar oil, wood pitch and wood creosote.

Two other charcoal ironworks also existed briefly in Ontario in the twentieth century. Charcoal was used for six months to fuel blast furnaces at the ironmaking plant of the Algoma Steel Co. in Sault Ste. Marie in 1905. It was also used at the Standard Iron Co. of Canada (later Parry Sound Iron Co.) from 1915 to 1919. The charcoal production of both plants was associated, as in the case of Rathbun's earlier enterprise, with hardwood distillation works (see Section 3.6).

Coal tar produced as a by-product in the making of coke which was the principal fuel in the operation of blast furnaces. The first by-product coke ovens in Ontario began operation at the Algoma Steel Co. works, Sault Ste. Marie, in 1911. By 1919 the Steel Company of Canada in Hamilton was also engaged in the production of tar from by-product coke ovens. Together in that year, the two companies produced over 7.5 million gallons of coal tar.

Indeed, by far the greater part of the Canadian output of the material following World War I came from by-product coke ovens whereas formerly it had come chiefly from illuminating and fuel gas manufacture. Low temperature coke ovens yielded more tar per ton of coal than gas producing retorts. In 1919 by-product coke ovens in Canada produced 11.6 million gallons as against only 6.4 million gallons from the illuminating and fuel gas (city gas) industry.

During January 1924 operations were begun at a third plant - the Hamilton By-Products Coke Ovens Ltd. - although it was not associated with the iron and steel industry. This site also produced coal gas for municipal consumption and was discussed in the "town gas" inventory report (INTERA, 1987). Initially it produced four to five thousand gallons of tar per day. By-product coke ovens in Ontario were to continue to lead production in coal tar into the late 1930s, and probably thereafter as well. In 1951 a by-product coke oven plant was opened with the establishment of the Dominion Foundries and Steel Co. Ltd. at Hamilton.

A number of different types of by-product coke ovens were used but the method of collecting and storing tar was essentially the same. The principal by-products of coking operations were coal tar, ammonia liquor and gas. Tar and ammonia liquor were collected from coolers and tar extractors and separated in separating tanks. The tar was stored in above-ground tanks; these were usually elevated vertical iron cylinders of comparatively large diameter. Tar "drip tanks" for coolers and extractors were subterrainean. Ammonia liquor was distilled to produce free ammonia. The waste liquor from this process, which would have contained some tar, was run into a sewer. Free ammonia then passed into the gas and was carried to a saturator where ammonium sulphate was recovered.

It was customary to dehydrate coal tars at their point of production to avoid paying freight charges on water content. In most cases, tar storage tanks were equipped with a steam coil in the bottom for this purpose. Other methods of dehydrating coal tar included settling in storage tanks, use of centrifuges, horizontal stills, tube heaters, cascading and steaming the tar, and spraying the tar into water. Tar was transported to distilleries or other customers by rail in special tank cars or by water in barges. Where coal tar producers were close to distilling plants it was sometimes moved in pipelines.

Iron and steel plants could produce tar by other means and these deserve brief mention. For a few years the Algoma Steel Co. at Sault Ste. Marie operated an extensive water gas plant to produce auxiliary fuel for its pyrrhotite ore roasting works, but this was discontinued by 1907. The manufacture of water gas is based on the decomposition of steam by incandescent coke or anthracite. It is usually enriched with a petroleum oil heated to a gaseous state and mixed with water gas. The heavier vapours from the oil later condense on cooling and form the water gas tar, which in reality is an oil tar.

The Algoma Steel Co. also had a producer gas plant in association with the open hearth steel department which began operation in 1907. Eight gas producers were situated immediately behind the open hearth building. Producer gas plants burned raw coal at low heat and the process yielded tar which could be recovered as a by-product. The gas was used to fuel the open hearth furnaces and to dry out the ladles which carried the molten steel after these had been repaired and made ready for reuse.

In addition to producing coal tar and ammonium sulphate from liquors derived from tar extractors, by-product coke oven plants also stripped the gases from coal burning for the recovery of benzene, toluene, xylene, solvent naptha and naphthalene. Some of these products in addition to coal tar were refined by Canadian producers for sale, but several producers sold their tars to treating works; some tar was burned under boilers at the plant, and some was used locally for waterproofing in building, road works, and similar situations.

## 3.5 INDUSTRIAL MANUFACTURED GAS PLANTS

Manufactured gas plants had a variety of industrial uses in Ontario and date from as early as 1880 to as late as 1969. Gas was manufactured from coal, coke and oil for use as industrial heat and light, metal refining and railway car lighting. In all of these gasification processes tars were generated in the combustion process and removed during condensing and gas purifying operations.

The process of manufacturing gas by superheating oils began about 1850 in Germany when Julius Pintsch produced the first compressed oil gas we now know as "Pintsch" gas. For a time, this gas was used to light buoys and wayside railway stations. Its major use, however, was as an illuminant for railway carriages in both Europe and North America. Europeans employed gas from shale and lignite in this process. North Americans used refined petroleum oils.

Pintsch or oil gas tar is similar to water gas tar: it contains small quantities of benzol and toluol and a large amount of napthas, some naphthalene, little or no anthracene and phenols (Rogers, 1926). Even as late as 1916 oil gas tar was considered a troublesome by-product. Its composition was not determined exactly and the tar varied significantly with the raw materials and the apparatus employed. Oil gas tar was sometimes worked up by distillation. The residue was used as a substitute for natural asphalt and the pitch was employed as a base for black enamel or varnish. Large quantities of oil tar were burned as a fuel at gasworks (Lunge, 1916).

Pintsch or oil gas manufacture was not an extensive industry in Canada. Ontario production appears to have been largely restricted to the plants of the Pintsch Compressing Co. Ltd. which began operations at Toronto and North Bay around 1910 and continued until the late 1950s and smaller industrial plants such as the gas plant of the Preston Woollen Mills, Preston. Pintsch Compressing Co. gas was used for lighting railway passenger cars.

Some companies providing municipal heat and light also constructed oil gas plants as part of their auxiliary operations. Among these plants were those located on company sites which also employed the coal gasification process and were covered as part of the previous inventory study. The Union Natural Gas Co. of Canada also employed a Dayton process oil gas plant as an auxiliary to its natural gas plant in Windsor.

Pintsch or oil gas plants were smaller in scale than works for the production of coal gas. The gas was manufactured by spraying gas oil derived from petroleum (usually fuel oil) in a closed retort constructed of iron or fire clay and heated to a temperature of 900 to 1000°C by the combustion of oil, gas or tar underneath. Vapours passed to the rear of the horizontal retort, then downward and through a scrubber, condenser and purifier. Tarry matter deposited in the hydraulic main, condenser, etc. was conveyed by means of pipes into tar tanks, usually above-ground cylindrical steel vessels. About 10% tar is recovered in the Pintsch process. Some of the tar was used to fire the plant's retorts while some was sold to distillers and shipped in cylindrical steel railway cars as is the case with the coal tar from by-product coke oven works.

Industrial manufactured gas plants based on coal and coke were also identified in this study. The Algoma Steel Co. operated a water gas plant and a producer gas plant during early operations (1907 - 1930s) (see Section 3.4). The Inco Ltd. Port Colborne Refinery also used a water gas producer in the refinery process. The gas producer was small and generated gas by passing steam through heated coke. By-product tars from the Inco gas plant were burned on-site as fuel. The Algoma gas plants are not discussed further in this report because they are now part of the Algoma Steel Mill complex. The Inco gas producer is also not considered to be an important site in this report.

Two industrial coal gasification plants were identified in this study, the American Cyanamid Co. fertilizer works in Niagara Falls, Ontario and the Ford Motor Co. site in Windsor (Walkerville), Ontario. The operation and purpose of the Cyanamid manufactured gas plant is not known although, it is likely that both the gas and by-products (coke and ammonia) of the gas plant were used in the manufacture of calcium cyanamide fertilizer. Calcium cyanamide is produced by reacting coke and lime in an electric furnace in the presence of nitrogen.

The Ford Motor Co. coal gasification plant was also a coal tar distillation plant. The plant used the manufactured gas in heating and forging operations, the sulphate of ammonia as a fertilizer, the benzol and heavy oils as fuel. Creosote was sold for timber preserving. The Ford Motor Co. distillation plant utilized a comparitively low distillation temperature which resulted in greater recovery of volatiles and larger tar yields per ton of coal.

## 3.6 WOOD DISTILLATION

The term wood distillation can be applied to both the distillation of hardwood and the distillation of resinous wood or softwood. Both types of wood can be distilled using a destructive distillation process, although softwood can also be processed using a steam distillation and extraction method.

Pine tar was the earliest and most important product of softwood distillation in Canada. It was made in tar kilns or tar pits without any attempt at other by-product recovery, similar to the manner in which charcoal was made. The major use of pine tar was as a component in the early manufacture of cordage (tarred rope and twine). Even so, the distillation of softwood did not become a significant activity in Canada, and is of little interest to this study. In consequence, the following comments address the destructive distillation of hardwood only.

The first successful commercial distillation of hardwoods in North America occurred in New York State in 1850; its principal product was acetate of lime (Hawley, 1923). During the 1880s, E.W. Rathbun opened Ontario's first hardwood distillation plant at Deseronto. In 1889 the plant consisted of eight beehive kilns with a capacity of 50 cords of wood each, which yielded "4 coal oil barrels of liquid" per cord. The destructive distillation of hardwood normally yields 18 to 20 imperial gallons of tar per cord (Canada, Department of the Interior, 1922) (see Figure 3.2). The principal early products of Rathbun's plant were listed as charcoal (75,000 bu), wood alcohol, acetate of lime, sugar of lead and "liquors used in dyeing". No mention was made of tar as a product; presumably it was used to fuel the kilns and/or run to waste. Rathbun established an ironworks at Deseronto in 1898 and used the charcoal as a fuel in its blast furnaces. These works operated on charcoal until 1917 and it is probable that the wood distillation plant closed soon after charcoal was abandonned as a blast furnace fuel since no record has been found to confirm its existence after that time.

By 1910, seven more hardwood distillation plants had been opened. These were located in Sault Ste. Marie, South River, Fenelon Falls, Longford, Parry Sound, Donald and Thornbury. Two more, in Trout Creek and Lindsay, were started before 1922. Most of these plants were located in rural areas and the majority of them were also either established or absorbed by the Standard Chemical Company of Canada. Hardwood distillation became a major industry during World War I when the demand for acetone for the manufacture of cordite provided new impetus for growth. With this base, the industry continued to flourish in the 1920s and 1930s, and lasted in some cases into the late 1940s.

During the sixty year period the wood distillation industry operated in Canada, there were three changes in the technology it employed. Brick beehive by-product kilns were used in the 1880s in Rathbun's early Deseronto plant. In the 1890s these were superceded

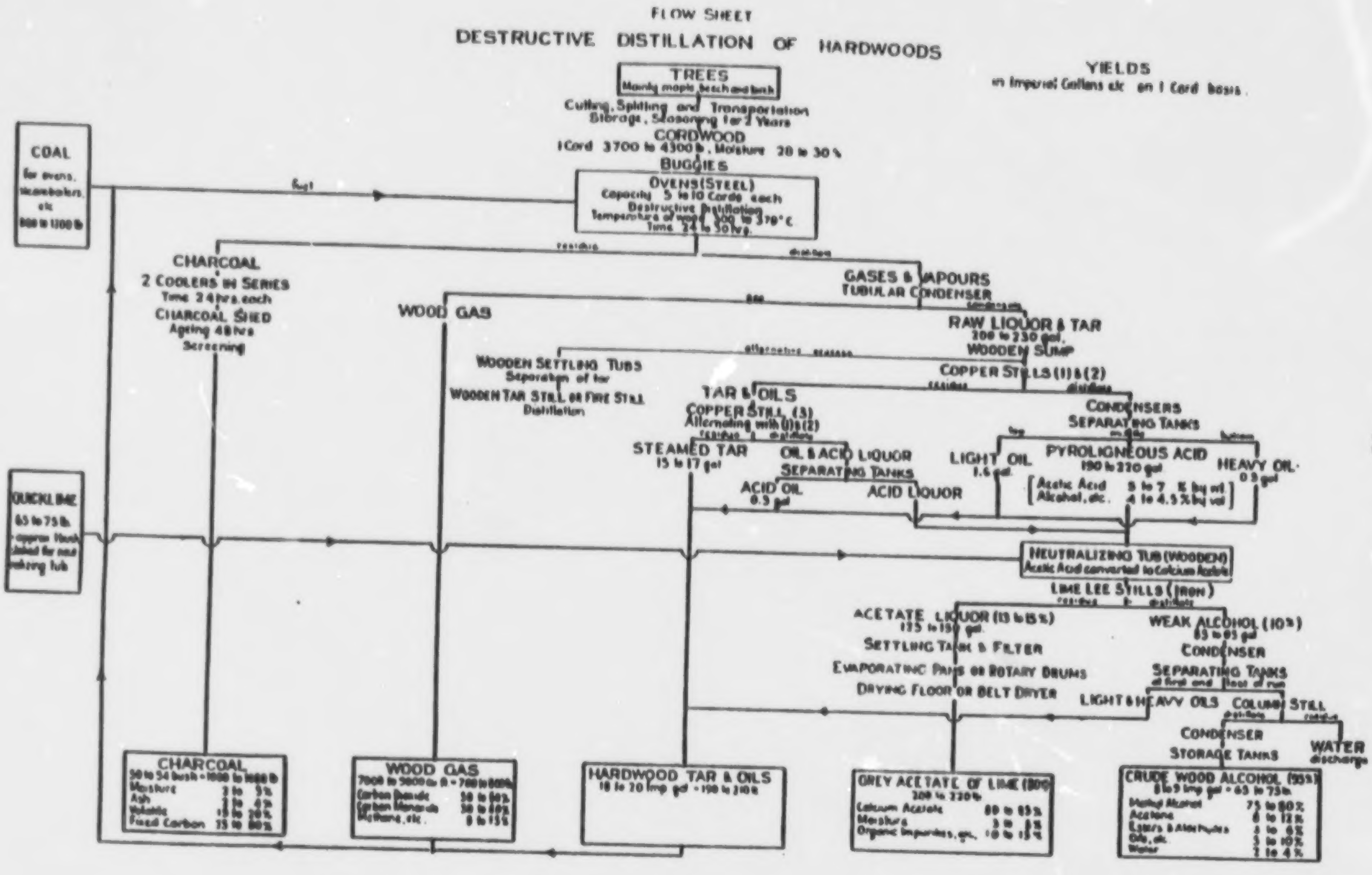
FLOW SHEET
DESTRUCTIVE DISTILLATION OF HARDWOODS
YIELDS
in Imperial Gallons etc on 1 Cord basis.
TREES
Mainly maple beech and birch
Cutting, Splitting and Transportation
Storage, Seasoning for 2 Years
CORDWOOD
1 Cord 3700 to 4300 lb, Moisture 20 to 30 %
BUGGIES
OVENS (STEEL)
Capacity 5 to 10 Cords each
Destructive Distillation
Temperature of wood 300 to 370° C
Time 24 to 30 hrs.
COAL
for ovens, steamboilers, etc
800 to 1200 lb
fuel
residue
distillate
CHARCOAL
2 COOLERS IN SERIES
Time 24 hrs. each
CHARCOAL SHED
Ageing 48 hrs
Screening
GASES & VAPOURS
TUBULAR CONDENSER
gas
condensate
WOOD GAS
RAW LIQUOR & TAR
200 to 230 gal.
WOODEN SUMP
alternative process
WOODEN SETTLING TUBS
Separation of tar
WOODEN TAR STILL OR FIRE STILL
Distillation
COPPER STILLS (1) & (2)
residue
distillate
TAR & OILS
COPPER STILL (3)
Alternating with (1) & (2)
residue & distillate
CONDENSERS
SEPARATING TANKS
top
middle
bottom
STEAMED TAR
15 to 17 gal
OIL & ACID LIQUOR
SEPARATING TANKS
ACID OIL
0.3 gal
ACID LIQUOR
LIGHT OIL
1.6 gal
PYROLIGNEOUS ACID
190 to 220 gal
Acetic Acid 5 to 7 % by wt
Alcohol, etc. 4 to 4.5 % by vol
HEAVY OIL
0.3 gal
QUICKLIME
65 to 75 lb.
approx 1 bush
slaked for each
neutralizing tub
NEUTRALIZING TUB (WOODEN)
Acetic Acid converted to Calcium Acetate
LIME LEE STILLS (IRON)
residue & distillate
ACETATE LIQUOR (13 to 15 %)
175 to 150 gal
SETTLING TANK & FILTER
EVAPORATING PANS OR ROTARY DRUMS
DRYING FLOOR OR BELT DRYER
WEAK ALCOHOL (10%)
85 to 95 gal
CONDENSER
SEPARATING TANKS
at first and last of run
LIGHT & HEAVY OILS
COLUMN STILL
distillate
residue
CONDENSER
STORAGE TANKS
WATER
discharge
CHARCOAL
50 to 54 bush = 1000 to 1080 lb
Moisture 3 to 5%
Ash 2 to 4%
Volatile 15 to 20%
Fixed Carbon 75 to 80%
WOOD GAS
7000 to 9000 cu ft = 700 to 800 lb
Carbon Dioxide 50 to 60%
Carbon Monoxide 30 to 40%
Methane, etc. 8 to 15%
HARDWOOD TAR & OILS
18 to 20 Imp gal = 190 to 210 lb
GREY ACETATE OF LIME (80%)
200 to 220 lb
Calcium Acetate 80 to 85%
Moisture 3 to 5%
Organic Impurities, etc. 10 to 15%
CRUDE WOOD ALCOHOL (95%)
8 to 9 Imp gal = 63 to 73 lb
Methyl Alcohol 75 to 80%
Acetone 8 to 12%
Esters & Aldehydes 3 to 6%
Oils, etc. 3 to 10%
Water 2 to 4%

Figure 3.2 Flow sheet - destructive distillation of hardwoods (after Canada Department of the Interior, 1922)

by retorts - initially horizontal retorts made of cast iron, then later cylindrical steel retorts. From about 1900, rectangular steel ovens known as "Jumbos" (to distinguish them from the older, smaller cylindrical retorts) were adopted as standard equipment in Canada. By the 1920s, the oven capacity of individual Jumbos in operation in Ontario ranged from 5 to 10 cords a day, with the total capacity of operating plants ranging from 20 to 112 cords a day. This progression of technology from kiln to retort to oven substantially increased the efficiency of destructive distillation activities. It did not, however, alter the basic process which in all cases remained condensation of the gaseous products of wood burning.

Raw liquor from the oven's condenser was often pumped to a series of wooden tanks to allow the tar to settle so that the tar from the bottom of the tank could be drawn off to a wooden tar still for refining by steam distillation. It was common practice in Canada, however, to feed the whole raw liquor directly into the primary copper stills which had a capacity (in the early 1920s) of 3,000 - 4,000 gallons. The liquor was fed continuously to the tar stills where alcohol, acid water and impurities were separated by distillation from the free and dissolved tar. The tar residuals, in turn, were drawn off to a storage tank (construction not known, but likely wood). Ordinarily, this tar was used to heat the steam boilers for the stills or used elsewhere at the plant as a fuel (Canada Department of Interior, 1922). In the early 1920s, the markets for hardwood tar and its derived products were not well established in North America.

Some outlet was beginning, nevertheless, for the products of fractional distillation of hardwood tar in the production and sale of beechwood creosote for use in the pharmaceutical industry, for wood preservatives (both tar and creosote), oils for ore floatation in the mining industry, binders for briquetting, pitch for roofing felts, lubricating mixtures and certain chemical derivatives (Hawley, 1923).

Even so, tar was not recorded in the reports of the Dominion Bureau of Statistics on the hardwood distillation industry for the entire period 1917 to the 1940s, although creosote was identified as a product from 1927. One suspects that before the 1920s and perhaps after, tar surplus to fuel requirements at hardwood distillation plants was run to waste, since considerably more was produced than could be used.

# 4. COAL TAR AND RELATED TARS

Coal tars, oil tars and wood tars are all generated by the incomplete combustion of carbon-based materials and the recovery and condensation of the gaseous products of such combustion. As such the tars associated with coal tar distillation plants, creosoting plants, roofing felt and tarred paper product manufacturers, by-product charcoal and coke ovens, industrial manufactured gas plants and wood distillation plants have generally similar physical and chemical characteristics and therefore similar environmental behaviour and health effects. The exact chemical and physical properties of a particular tar will be determined from the type of raw materials, the temperature and type of combustion or distillation process and the efficiency of condensing, exhausting and purifying operations.

## 4.1 CHEMISTRY AND ENVIRONMENTAL BEHAVIOUR OF TARS

The major chemicals associated with coal, wood and oil tars that may pose an environmental concern are:

- Polynuclear Aromatic Hydrocarbons (PAH);
- Phenolics;
- Light Aromatics (e.g., benzene, toluene, xylene).

These compounds are present in tars, sludges and liquors derived from coal, wood and oil. Table 4.1 shows the physical and chemical properties of typical coal tar constituents and the typical chemical composition of a coal tar. Oil and water gas tars are generally similar to coal tars but contain smaller amounts of nitrogeneous PAH, benzol, toluol, anthracene and phenol and larger amounts of napthas (Rogers, 1926). Wood tars are also similar to coal tars except that they contain only small quantities of ammonia, naphthalene and paraffin (Klar, 1925).

Table 4.1 Physical and Chemical Properties of Typical Coal Tar Constituents

| Constituent | Formula | Molecular Weight | Aqueous Solubility (mg/L) | Log $K_{ow}$[6] |
|---|---|---|---|---|
| PAH | | | | |
| Naphthalene | $C_{10}H_8$ | 128.16 | 31.7[1] | 3.37 |
| Acenaphthylene | $C_{12}H_8$ | 152.21 | 3.9[5] | - |
| Acenaphthene | $C_{12}H_{10}$ | 154.21 | 3.93[1] | 4.33[8] |
| Fluorene | $C_{13}H_{10}$ | 166.21 | 1.98[1] | 4.12[5] |
| Anthracene | $C_{14}H_{10}$ | 178.22 | 0.073[1] | 4.45 |
| Phenanthrene | $C_{14}H_{10}$ | 178.22 | 1.29[1] | 4.46 |
| Fluoranthene | $C_{16}H_{10}$ | 202.26 | 0.26[1] | - |
| Pyrene | $C_{16}H_{10}$ | 202.24 | 0.135[1] | 4.88[5] |
| 1,2-Benzoanthracene | $C_{18}H_{12}$ | 228.28 | 0.014[1] | 5.61[7] |
| Chrysene | $C_{18}H_{12}$ | 228.28 | 0.002[1] | 5.61[7] |
| Benzo(a)pyrene | $C_{20}H_{12}$ | 252.30 | 0.0038[1] | 6.04[7] |
| 3,4-Benzofluoranthene | $C_{20}H_{10}$ | 252.32 | 0.0015[2] | 6.7[8] |
| Benzo(ghi)perylene | $C_{22}H_{12}$ | 276.34 | 0.00026[1] | 7.23 |
| Indeno(1,2,3-cd)pyrene | $C_{22}H_{12}$ | 276.34 | 0.0002[2] | - |
| Dibenz(a,h)anthracene | $C_{22}H_{14}$ | 278.00 | 0.0005[4] | 5.97[8] |
| Light Aromatics | | | | |
| Benzene | $C_6H_6$ | 78.11 | 1780.[3] | 2.13 |
| Toluene | $C_7H_8$ | 92.13 | 538.[3] | 2.69 |
| Ethylbenzene | $C_8H_{10}$ | 106.16 | 159.[3] | 3.15 |
| Phenolics | | | | |
| Phenol | $C_6H_5OH$ | 94. | 82000.[6] | 1.46 |
| Meta-Cresol | $CH_3C_6H_5OH$ | 109. | 23500.[6] | 1.98 |

Notes:
[1] Data from Mackay and Shiu (1977)
[2] Data from NBS (1981)
[3] Data from McAuliffe (1963)
[4] Data from Pearlman et al. (1983)
[5] Data from Lyman et al. (1982)
[6] Data from Verschueren (1983)
[7] Data from USEPA (1980)
[8] Data from Versar (1979)

Polynuclear aromatic hydrocarbons are compounds consisting of two or more fused benzene rings. The physical and chemical properties of PAH are dependent on the structure of individual compounds. The aqueous solubility and volatility of each compound decreases as the molecular weight of the compound increases. Therefore those compounds with a simple structure have higher solubilities and volatilities than those with a complicated structure. PAH are strongly adsorbed and immobilized in soils and are also susceptable to biodegradation by microorganisms. Table 4.1 also lists the logarithm of the octanol-water partitioning coefficient, $K_{ow}$, which is a measure of the partitioning of tar constituents between the water and soil. Larger $K_{ow}$ values indicate a greater affinity for adsorption. As a result of these properties, PAH tend to be relatively immobile in the environment. However, the fact that they occur in tars and that tars can migrate as an immiscible, heavier-than-water phase increases their mobility and potential environmental impact.

Light aromatics, such as benzene, xylene and toluene are moderately soluble, and biodegradeable with high volatility and low sorption. They are expected to be relatively mobile in groundwater systems. However, the presence of these compounds will be largely determined by their volatilty.

Phenolics (e.g., phenol, cresol and xylenol) are highly soluble with low sorption and high biodegradeability and therefore are expected to be highly mobile in groundwater.

## 4.2 HEALTH EFFECTS

The environmental impact and risk associated with tars and tar wastes are derived from exposure and/or contact with hazardous substances. The hazardous substances of primary concern are polynuclear aromatic hydrocarbons and light aromatic hydrocarbons. The environmental impact from these substances results in adverse effects on human health and aquatic and terrestrial ecosystems. The most adverse effect associated with PAH and light aromatic hydrocarbons, is the increased incidence of cancer (ERT, 1984). Health effects associated with PAH are documented in the literature because of their ubiquitous presence in the environment. PAH are found in polluted air, tobacco smoke, cooking products, soots, tars, and oils. PAH are formed in a variety of hydrocarbon combustion processes routinely exposing most people to very low levels of PAH. In general, PAH are a large group of chemicals of which only a few have been suitably tested with respect to human health effects. The major routes of PAH adsorption are through inhalation and cutaneous exposure (Occupational Health Program, McMaster University, 1986).

The carcinogenic activity of various PAH is given in Table 4.2 from ERT (1983). In general, the toxicity of PAH in various species increases as the molecular weight of the compound increases. This effect is tempered somewhat by differences in solubility in that the heavier compounds are less soluble and, therefore, less mobile in aqueous environments. PAH are noted to bioaccumulate in animal tissue of aquatic organisms and also are accumulated by adsorption in plants. The adsorption tends to be onto root surfaces as opposed to into the plant structure and, therefore, does not accumulate in the plant itself.

Single ringed, light aromatic hydrocarbons found in coal, oil and wood tars generally consist of the toxic compounds benzene, toluene, xylene and ethylbenzene. Of these compounds, benzene is the most toxic because of its carcinogenic health effects (USEPA, 1980a). The common method of human exposure is by inhalation due to the volatile nature of the light aromatics.

Chronic exposure to benzene has the most serious health effects of the light aromatics because of its increased risk for the development of leukemia (ERT, 1984). All of the light aromatic

### Table 4.2 Carcinogenic Activity of Some Unsubstituted Polycyclic Aromatic Hydrocarbons (ERT, 1983)

| Compound | Activity |
|---|---|
| Acenaphthylene | - |
| Anthanthrene | - |
| Anthracene | - |
| Benzo[a]naphthacene | - |
| Benzo[a]pyrene | + (c,d) |
| Benzo[a]fluorene | - |
| Benzo[b]chrysene | - |
| Benzo[b]fluoranthene | + (c,d) |
| Benzo[b]fluorene | - |
| Benzo[c]chrysene | + |
| Benzo[c]fluorene | - |
| Benzo[c]phenanthrene | + |
| Benzo[e]pyrene | - |
| Benzo[g]chrysene | + |
| Benzo[ghi]fluoranthene | - |
| Benzo[ghi]perylene | + |
| Benzo[j]fluoranthene | + (c) |
| Benzo[k]fluoranthene | - |
| Benz[a]anthracene | + (c,d) |
| Chrysene | + (c) |
| Coronene | - |
| Dibenzo[a,e]pyrene | + (c,d) |
| Dibenzo[a,h]pyrene | + (c,d) |
| Dibenzo[a,i]pyrene | + (c,d) |
| Dibenzo[a,j]naphthacene | - |
| Dibenzo[a,l]pyrene | + |
| Dibenzo[b,g]phenanthrene | - |
| Dibenzo[b,k]chrysene | - |
| Dibenzo[de,qr]naphthacene | - |
| Dibenzo[e,l]pyrene | - |
| Dibenz[a,c]anthracene | + |
| Dibenz[a,h]anthracene | + (c,d) |
| Dibenz[a,j]anthracene | - |
| Fluoranthene | - |
| Fluorene | - |
| Hexacene | - |
| Indeno[1,2,3-cd]pyrene | + (c,d) |
| Naphthacene | - |
| Naphthalene | - |
| Naphtho[2,3-b]pyrene | + |
| Pentacene | - |
| Pentaphene | - |
| Perylene | - |
| Phenanthrene | - |
| Picene | - |
| Pyrene | - |
| Tribenzo[aei]pyrene | + |
| Triphenylene | - |

[a] Data from Shear, 1938, 1941; Arcos and Argus, 1974; Dipple, 1976; Santodonato et al., 1981

[b] Symbols: + complete carcinogen by either skin painting, subcutaneous injection, intramuscular injection, intravenous injection, intraperitoneal injection, intratracheal instillation, oral administration to mammals
- negative in animal bioassay

[c] Compounds classified as "having substantial evidence of carcinogenicity" by the U.S. EPA Carcinogen Assessment Group (U.S. EPA, 1980b). The CAG list also includes two alkylated PAH (7, 12-dimethylbenz(a)anthracene and 3-methylcholanthrene), as well as "coal tar and soot", "coke oven emissions (polycyclic organic matter)" and "creosote".

[d] Compounds classified as showing "sufficient evidence" of carcinogenicity for animal carcinogens by the International Agency for Research on Cancer.

hydrocarbons affect the central nervous system with acute symptoms including headache, dizziness, fatique, nausea, unconsciousness and coma.

In aquatic ecosystems, the light aromatic hydrocarbons are moderately toxic to fish and lower species. Toxic levels of benzene, toluene, and xylene generally range from 1 to 100's of $mg \cdot L^{-1}$. For example, rainbow trout was found to have an LC-50 (lethal concentration for 50 percent of the population) of $5.3\ mg \cdot L^{-1}$ for benzene (USEPA, 1980a).

A recent Ontario Ministry of Labour sponsored study, (Occupational Health Program, McMaster University, 1986) provides a comprehensive review of the available scientific evidence relating to health effects of coal tar and other substances which contain polynuclear aromatic hydrocarbons. This study concludes that there is sufficient evidence concerning human carcinogenic potential of coal tar products in the literature to warrant stringent control of workplace exposures. This study recommends an interim standard for occupational exposure to volatiles of coal tar products at $0.05\ mg/m^3$ (cyclohexane soluable extract) time weighted over an 8 hour working day and zero dermal exposure.

# 5. RESULTS

## 5.1 LIST OF INDUSTRIAL SITES PRODUCING AND USING COAL TAR AND RELATED TARS IN ONTARIO

The study approach described in Section 2 identified 44 plant sites in 25 different communities in Ontario. Thirty-five former sites and nine active sites were identified. Active sites included four coal tar distillation plants, one creosoting plant and four by-product coke ovens of the iron and steel industry. The distribution of these former and active plants in Ontario is shown on Map 1 in Volume II of this report. Table 5.1 presents a list of these sites by industrial operation with their location and approximate years of operation.

Site specific information collected on each site listed in Table 5.1 is presented in the appendices contained in Volume II of this report. The information is arranged in a consistent manner for each site with each appendix containing the following:

- location map;
- historical plant map;
- fact sheet.

The location map identifies the location of the plant in the community on a small scale map. The historical map illustrates the configuration of the plant typically in its largest extent and locates the plant relative to existing streets. Other historical maps and early air photos available for each site are listed on the fact sheets. Detailed information regarding property occupants is given on the fact sheets. The fact sheets, described in Section 2.3.1, contain the factual information on each site. Most of the information collected on each site has been condensed onto the fact sheet in order to provide as complete a description of each site as is possible.

## Table 5.1 List of Industrial Sites Producing and Using Coal Tar and Related Tars in Ontario

| Community | Company | Address | Approximate Years of Operation |
|---|---|---|---|
| **Coal Tar Distillation Plants** | | | |
| Hamilton | Currie Products | 350 Wentworth St. N. | 1978-present |
| Hamilton | Dominion Tar and Ammonia,<br>Hamilton Tar & Ammonia,<br>Hamilton Tar Products,<br>Currie Products | East side Caroline between Mulberry & Sheaffe Sts. | 1901-1977 |
| Hamilton | Dominion Tar & Chemical,<br>Domtar Chemicals | West side Strathearne Ave. north of Burlington St. | 1950s-present |
| Ottawa | Hamilton Tar Products,<br>Currie Products | 170 Lees Ave. | 1922-1948 |
| Sault Ste. Marie | Dominion Tar & Chemical,<br>Domtar Chemicals | South of Baseline (Wilde Ave.) and Dryden | 1911-present |
| Thunder Bay (Port Arthur) | Northern Tar & Chemical,<br>Northern Wood Preservers | 2nd Ave. & Water Front S. (Maureen St.) | 1938-present |
| Toronto | Barrett Co. | 675 Lakeshore Blvd. E. | 1922-1960s |
| Toronto | Dominion Tar & Chemical/<br>Domtar Chemicals | 801 Lakeshore Blvd. E. | 1925-1974 |
| Toronto | J.D. Paterson Co./<br>Barrett Co. | 5-33 Hahn Place | 1900-1922 |
| Toronto | Imperial Varnish & Colour | North side Lakeshore Blvd. E. between Logan and Morse Sts. | 1900-1960 |
| Windsor | Ford Motor Co. | Between Riverside Dr. E. and Wyandotte, west of Belle Isle (Belleview) | 1923-1950s |

Table 5.1 List of Industrial Sites Producing and Using Coal Tar and Related Tars in Ontario (cont'd)

| Community | Company | Address | Approximate Years of Operation |
|---|---|---|---|
| **Creosoting Plants** | | | |
| Sioux Lookout | Canada Creosoting Co.<br>Calder Creosoting Co. | 1.6 km east of First Ave. | 1928-1960 |
| Sudbury | Canada Creosoting Co.<br>Domtar Chemicals | South side Lorne St. Between Sutherland & Bulmer Sts. | 1925-1964 |
| Thunder Bay (Fort William) | Canada Creosoting Co.<br>Dominion Tar & Chemical | North of Carpenter St. East of 105th St. on McKellar Is. | 1940-1946 |
| Trenton | Canada Creosoting Co., Domtar Chemicals | 126 Marmora St. | 1913-present |
| **Roofing Felt and Tarred Paper Products Manufacturers** | | | |
| Brantford | Brantford Roofing Co. | 22 Sydenham St. | 1906-1950s |
| Cornwall | Domtar Construction Materials Ltd. | Northwest corner Seventh & Cumberland Sts. | 1940-1968 |
| Hamilton | Building Products Ltd./ Bird and Son Division | 70 Beach Rd. at Gage | 1910-1954 |
| London | Canadian Roofings Ltd./ London Roofings/Viceroy Manuf./Bishop Asphalt Papers | 1350 Trafalgar Rd. | 1939-1957 |
| Toronto | Paterson Manufacturing Co. | 297-307 Front St. E. | 1882-1899 |
| Toronto | Toronto Asphalt Roofing Manuf. Co. | 15 Oxford Dr. | 1922-1950 |
| Windsor | ACME Roofing Co. | Southeast corner Walker and Edna Sts. | 1917-1923 |
| Windsor | Canadian Roofing Manuf. Co. Ltd. | Southeast corner McDougall and Shepherd Sts. | 1914-1921 |

Table 5.1 List of Industrial Sites Producing and Using Coal Tar and Related Tars in Ontario (cont'd)

| Community | Company | Address | Approximate Years of Operation |
|---|---|---|---|
| **By-Product Charcoal and Coke Oven Plants of the Iron and Steel Industry** | | | |
| Hamilton | Dominion Foundries & Steel, Dofasco | North of Burlington E. between Kenilworth N. & Ottawa N. | 1951-present |
| Hamilton | Steel Co. of Canada | Wilcox St. | 1918-present |
| Nanticoke | Steel Co. of Canada | Regional Rd. 3 and Lake Erie | 1981-present |
| Sault Ste. Marie | Algoma Steel Ltd. | South of Baseline & Goetz Rd. | 1899-present |
| **Industrial Manufactured Gas Plants** | | | |
| Cambridge (Preston) | Pattinson Woollen Mill | 498 Eagle St. N. | 1870s-1890s |
| Ottawa | Dominion of Canada Fuel Testing Laboratories | 552/562 Booth St. | 1911-1940s |
| Niagara Falls | American Cyanamid Co. (Fertilizer Works) | Stone Rd. and Fourth Ave. | 1916-1920 |
| North Bay | Pintsch Compressing Co. | 535 Stanley St. | 1910-1956 |
| Toronto | Pintsch Compressing Co. | Foot of Peter St. east of Spadina | 1906-1960 |
| Windsor | Union Natural Gas Co. of Canada | Northeast corner Howard Ave. and E.C. Row North Service Rd. | 1929-1950s |
| **Wood Distillation Plants** | | | |
| Deseronto | E.W. Rathbun, Standard Chemical Co. | Main & First St. | 1890-1920s |
| Donald | Donald Wood Products, Standard Chemical Co. | Part Lot 6 and 7, Concession 1, Township of Dysart, Haliburton County | 1908-1945 |

Table 5.1 List of Industrial Sites Producing and Using Coal Tar and Related Tars in Ontario (cont'd)

| Community | Company | Address | Approximate Years of Operation |
|---|---|---|---|
| **Wood Distillation Plants** | | | |
| Fenelon Falls | Standard Chemical Co. | Francis St. and Cameron Lake | 1903-1916 |
| Lindsay | Canadian Industrial Alcohol Co. Ltd. | North side Eglington Rd. near Scugog River | 1930-1950 |
| Lindsay | Hodgson Bros. Chemical Co. Ltd. | St. Paul and Deniston Sts. near Scugog River | 1919-1930s |
| Longford Mills | Standard Chemical, Iron and Lumber Co., Standard Chemical Co. | Lot 20, Broken Frontage Rama Township | 1900-1943 |
| Parry Sound | Standard Chemical Co. | 300 m north of Isabella between railway tracks & Georgian Bay | 1909-1925 |
| Sault Ste. Marie | Algoma Steel Corp. Standard Chemical Iron & Lumber Co., Standard Chemical Co. | Near St. Mary's River, South of 3rd St. | 1911-1928 |
| South River | Standard Chemical, Iron and Lumber Co., Standard Chemical Co. | 1 km east of Village on South River | 1907-1967 |
| Thornbury | Thornbury Reduction, Standard Chemical Co. | Northeast corner Mill and Bay Sts., at Georgian Bay | 1916-1925 |
| Trout Creek | Dominion Wood and Lumber Co. | Concession 1, Parcel 3498, near Hwy 11 east of railway | 1920s |

## 5.2 PRELIMINARY ASSESSMENT OF POTENTIAL ENVIRONMENTAL IMPACTS OF FORMER INDUSTRIAL SITES

An assessment of the potential environmental impacts of each of the former sites listed in Table 5.1 was completed using the assessment criteria described in Section 2.3.2 and Table 2.1. The results of the preliminary assessment are given in Table 5.2 using high (H), medium (M) and low (L) rankings under each factor. The information necessary to complete the assessment of each site is found on the fact sheets. As was stated in Section 2.3.2, the preliminary assessment is qualitative and reflects the variable, uncertain and conjectural nature of some of the site specific information. The exercise is most useful in identifying categories (site characteristics, evidence of buried wates and resource characteristics) or factors for each site that may indicate a potential environmental impact and to provide a broad overview of each site.

In completing the assessment, the factors concerning visible wastes, odours or water pollution required clarification as to whether the problems were existing or historical occurrences. The distinction is important in terms of the environmental impact because it indicates a present problem or a problem that may have been more significant in the past. Historical occurrences, however, are just as important as present occurrences in terms of potential environmental impacts in that they may indicate the presence of on-site or off-site wastes, past or future impacted areas or migration pathways.

The following section provides a site by site description of each plant and identifies and describes the important assessment factors for each site.

Table 5.2 Assessment of Potential Environmental Impacts of Industrial Sites Producing and Using Coal Tar and Related Tars in Ontario

| Site Name & Location | Site Characteristics | | | | | Evidence of Buried Wastes | | | | | Resource Characteristics | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Size | Location | Current Use/ Ownership | Planned Use/ Ownership | Potential for Excavation | Operating Period | Excavation History | Visible Waste | Odour | Water Pollution | Surface Water Proximity | Surface Water Use | Ground-water Proximity | Ground-water Use |
| **Coal Tar Distillation Plants** | | | | | | | | | | | | | | |
| Currie Products Caroline St., Hamilton | H | H | H | L | L | H | H | L | L | L | H | L | L | L |
| *Currie Products Wentworth St., Hamilton | H | H | L | L | L | H | H | - | - | - | H | L | L | L |
| *Domtar, Cassidy Works, Hamilton | H | H | L | L | L | H | H | - | - | - | H | L | L | L |
| Currie Products Lees Ave., Ottawa | H | H | H | L | L | H | H | H | H | H | H | H | H | L |
| *Domtar Sault Ste. Marie | H | H | L | H | H | H | H | - | - | - | H | L | L | H |
| *Northern Tar Thunder Bay | H | H | L | L | L | H | H | - | - | - | H | H | H | L |
| Barrett Lakeshore, Toronto | H | H | H | L | L | H | H | $H^h$ | H | $H^h$ | H | H | L | L |
| Domtar Lakeshore, Toronto | H | H | H | H | H | H | H | H | H | H | H | H | L | L |
| Imperial Varnish Morse, Toronto | L | H | H | L | L | H | H | L | L | L | H | H | L | L |
| Paterson/Barrett Hahn Pl., Toronto | L | H | H | L | L | H | H | $H^h$ | L | L | H | H | L | L |
| Ford Motor Windsor | H | H | L | L | L | H | H | L | L | L | H | H | L | L |
| **Creosoting Plants** | | | | | | | | | | | | | | |
| Calder Creosoting Sioux Lookout | H | L | H | L | L | H | H | H | H | L | H | H | H | H |
| Canada Creosoting Sudbury | H | H | H | L | L | H | H | H | H | H | H | H | L | L |

* - active site
h - evidence from historical reference

Table 5.2 Assessment of Potential Environmental Impacts of Industrial Sites Producing and Using Coal Tar and Related Tars in Ontario (cont'd)

| Site Name & Location | Site Characteristics | | | | | Evidence of Buried Wastes | | | | | Resource Characteristics | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Size | Location | Current Use/ Ownership | Planned Use/ Ownership | Potential for Excavation | Operating Period | Excavation History | Visible Waste | Odour | Water Pollution | Surface Water Proximity | Surface Water Use | Ground-water Proximity | Ground-water Use |
| **Creosoting Plants** (cont'd) | | | | | | | | | | | | | | |
| Canada Creosoting<br>Thunder Bay | H | L | L | L | L | L | M | H | L | L | H | M | L | L |
| *Domtar<br>Trenton | H | M | L | L | L | H | H | - | - | - | H | M | M | L |
| **Roofing Felt and Tarred Paper Products Manufacturers** | | | | | | | | | | | | | | |
| Brantford Roofing<br>Co., Brantford | M | H | L | L | L | H | L | L | H** | L | L | M | L | L |
| Building Products<br>Hamilton | M | M | L | L | L | H | M | L | L | L | L | L | L | L |
| Domtar<br>Cornwall | M | M̂ | M | M | M | M | H | H | M | M | L | M | M | M |
| London Roofing<br>London | L | M | M | L | L | M | M | L | L | L | L | M | L | L |
| Paterson Manuf.<br>Toronto | L | M | H | L | L | M | H | H^h | H^h | M^h | M | M | L | L |
| Toronto Asphalt<br>Toronto | L | H | H | L | L | H | M | L | L | L | M | M | L | L |
| Acme Roofing<br>Windsor | L | M | M | L | L | L | M | L | L | L | M | M | L | L |
| Canada Roofing<br>Windsor | L | M | H | L | L | M | M | L | L | L | L | M | L | L |

** - odour identification complicated by current industrial activity on-site or within area

Table 5.2 Assessment of Potential Environmental Impacts of Industrial Sites Producing and Using Coal Tar and Related Tars in Ontario (cont'd)

| Site Name & Location | Site Characteristics | | | | | Evidence of Buried Wastes | | | | | Resource Characteristics | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Size | Location | Current Use/ Ownership | Planned Use/ Ownership | Potential for Excavation | Operating Period | Excavation History | Visible Waste | Odour | Water Pollution | Surface Water Proximity | Surface Water Use | Ground-water Proximity | Ground-water Use |
| **By Product Charcoal and Coke Ovens Plants of the Iron and Steel Industry** | | | | | | | | | | | | | | |
| *Dofasco Hamilton | H | M | L | L | L | H | M | - | - | - | M | L | L | L |
| *Stelco Hamilton | H | M | L | L | L | H | M | - | - | - | M | L | L | L |
| *Stelco Nanticoke | H | L | L | L | L | L | M | - | - | - | H | M | L | L |
| *Algoma Sault Ste. Marie | H | M | L | L | L | H | M | - | - | - | M | M | M | M |
| **Industrial Manufactured Gas Plants** | | | | | | | | | | | | | | |
| Pattinson Woollen Mill, Cambridge | L | M | M | L | L | M | M | L | L | L | M | M | M | L |
| Fuel Testing Labs Ottawa | L | M | M | L | L | L | M | L | L | L | M | M | L | L |
| Cyanamid Niagara Falls | L | M | L | L | L | M | M | H* | H** | L | M | M | M | L |
| Pintsch Comp. North Bay | M | M | L | L | L | H | M | L | L | L | M | M | L | L |
| Pintsch Comp. Toronto | L | H | H | L | H | H | H | H* | H* | L | M | M | L | L |
| Union Natural Gas Windsor | M | M | L | L | L | M | M | L | L | L | M | L | L | L |

Table 5.2 Assessment of Potential Environmental Impacts of Industrial Sites Producing and Using Coal Tar and Related Tars in Ontario (cont'd)

| Site Name & Location | Site Characteristics |  |  |  |  | Evidence of Buried Wastes |  |  |  |  | Resource Characteristics |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | Size | Location | Current Use/ Ownership | Planned Use/ Ownership | Potential for Excavation | Operating Period | Excavation History | Visible Waste | Odour | Water Pollution | Surface Water Proximity | Surface Water Use | Ground-water Proximity | Ground-water Use |
| **Wood Distillation Plants** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Rathbun Co. Deseronto | M | H | H | L | L | H | H | L | H$^b$ | L | H | M | L | L |
| Donald Wood Prod. Donald | M | L | M | L | L | H | M | M | M | H | H | H | M | L |
| Standard Chemical Fenelon Falls | M | H | H | L | L | M | M | L | L | L | H | H | L | L |
| Can. Ind. Alcohol Lindsay | H | L | H | H | H | M | H | L | H | L | M | M | L | L |
| Hodgson Bros. Lindsay | M | H | H | L | L | M | M | L | L | L | H | M | L | L |
| Standard Chemical Longford Mills | M | L | L | L | L | H | M | L | M | L | H | H | M | M |
| Standard Chemical Parry Sound | M | H | H | L | L | M | M | L | L | L | M | M | L | L |
| Standard Chemical Sault Ste. Marie | M | H* | L | L | L | H | M | L | H** | L | H | M | M | M |
| Standard Chemical South River | M | H | H | H | H | H | M | M | M | L | H | M | M | H |
| Standard Chemical Thornbury | M | H | H | H | H | L | H | L | L | L | H | M | L | L |
| Dominion Wood and Lumber Trout Creek | L | L | H | L | L | L | L | L | L | L | H | M | M | M |

## 5.3 DESCRIPTIONS OF INDUSTRIAL SITES PRODUCING AND USING COAL TAR AND RELATED TARS IN ONTARIO

This section contains site descriptions for each site and an assessment of potential environmental impact for each former site. The sites are listed alphabetically by location and by industrial activity. The site descriptions should be read in conjunction with the detailed site information contained in the appendices.

### 5.3.1 Coal Tar Distillation Plants

### 5.3.1.1 Hamilton - Currie Products Ltd., Caroline St.

Site Description

This site was one of the first coal tar distillation plants in Ontario and operated under several owners from about 1901 to 1977. Currie Products operated the site from 1929 to closure in 1977. The site was located on the east side of Caroline St. between Mulberry and Sheaffe Sts. and originally processed coal tar from the Hamilton city gas works located at Mulberry and Bay Sts. In later years this site processed coke oven tars from the Hamilton By-Product Coke Ovens and Stelco. Products manufactured in 1919 included creosote oils, pitch, naptha, naphthalene, tarred paper and roofing felt. Products listed in 1967 included creosote, disinfectants, oils, paints, pitch, road tar, refined tar and wood preservatives.

This site was sold to the City of Hamilton in the late 1970s and the city demolished the site in 1979/80. The contract for site demolition required that all tar tank contents be disposed in accordance with MOE regulations. Approximately 150,000 gallons of liquid and semi-liquid tar waste were estimated to have been removed from the site as part of the demolition.

Today this site is a City of Hamilton park with tennis courts, baseball diamond and children's playground. The park was constructed by eliminating Caroline St. between Sheaffe, Mulberry and Cannon St. W. The site is surrounded by a warehouse to the north, city works yard to the east and residences and parkland to the south and west.

## Potential Environmental Impact

This site operated for a long period of time (76 years) and also early when tar handling and disposal practices were more likely to have resulted in buried tar wastes. However, as part of the City of Hamilton demolition of the plant, all soils in areas of buildings and storage tanks (surface and underground) were to have been removed to a depth of 0.6 m below grade. Details of the actual demolition and soils excavation at this site were not available. No visible wastes were observed at the site during the site visit. Odour detection at the site was not possible because of the odours associated with operating steel works in the area.

Because of the lack of evidence of buried waste, continued land use, absence of groundwater use and distance to surface water, potential environmental impacts and health effects at this site are considered minimal. However based on the period of operation and subsurface conditions from similar sites, contaminated groundwater and soil likely exist at this site. Migration of contaminated groundwater is also likely along the bedding material of buried utility lines and sewers that transect the park along the former alignment of Caroline St. However because of the lack of groundwater use and distance to surface water there is no quantifiable impact from this likely contamination.

### 5.3.1.2 Hamilton - Currie Products Ltd., Wentworth St.

Site Description

Currie Products Ltd. relocated from the Caroline St. site to a site at 350 Wentworth St. in about 1978. The site is located at Rosemary Avenue and Wentworth Street North and is occupied by Currie Products Ltd. and Marshall Currie Refractories. Tar tank storage and distilling/processing facilities are located at the rear of the existing building. The rear of the site is fenced with controlled access. The site is located in a mixed residential/commercial/ industrial area with a car dealer located to the north, vacant land to the east and south and residences and a bar-restaurant to the west. The back of the property is reclaimed land from the Coal Oil inlet of Hamilton Harbour. There is no groundwater use in the area and the closest surface water is Hamilton Harbour at 800 m north east of the site. This is an active tar distillation/processing plant and was therefore not subject to assessment of potential environmental impact.

### 5.3.1.3 Hamilton - Domtar Cassidy Works

Site Description

Dominion Tar and Chemical Co. Ltd./Domtar Inc. operated a coal tar distillation plant at 725 Strathearne Avenue North from sometime in the late 1950s to present. This 3 hectare area site is still active and in 1967 produced creosote oils, roofing and other pitch and refined coal tar products. The site is now operated by Carbochem, a Domtar Rutgers Co. and processes coke oven tar from Stelco and Dofasco.

The site is located in a heavy industrial area with Dofasco, metal scrap yards, and the Canada-West Indies Molasses Co. occupying surrounding lands. A dock inlet of Hamilton Harbour is located 100 m to the northeast of the site. A ditch drains from the southwest corner of the site, into the site and likely to Hamilton Harbour.

This site is the subject of an ongoing hydrogeological study conducted by the property owner. As an active site it has not been subject to assessment of potential environmental impact.

### 5.3.1.4 Ottawa - Currie Products

#### Site Description

A coal tar distillation plant was located at 170 Lees Avenue in Ottawa from about 1922 to about 1949. The property was operated by Currie Products Ltd. who also used the property for tar storage until about 1970. The company produced creosote oils, pitch, road tar, tarred felts and sheeting, tar paints and cements and other products. The plant received its raw materials (i.e., tar) from the Ottawa Gas Company's coal gasification plant until 1939 and later from Stelco, Hamilton. The plant covered about 1.7 hectares of area between Lees Avenue and the Rideau River to the south.

The property today is occupied by a high-rise apartment building with underground parking. Other apartment buildings are also found to the north and east while an armory is located to the west.

#### Potential Environmental Impact

Coal tar wastes have been identified in the subsurface in the area of the former plant and a hydrogeologic study has been completed for MOE as part of investigations of the Ottawa Lees Avenue coal tar problems. Coal tar was identified in soils and groundwater in the area to the west of and under the apartment building. Tar was also found to be seeping into the lowest floor of the underground parking garage, resulting in odours in the garage. The coal tar in the soil has also caused shallow groundwater contamination which is migrating easterly towards an adjacent apartment building. Coal tar was also found adjacent to a storm sewer line that discharges to the river at the western boundary of the property.

The potential environmental impacts of this site result from free coal tar in the soil and groundwater contamination. The coal tar seeping into the building results in odour problems in the garage and increases the possibility of direct contact with the tar. These impacts have been reduced by closing off and limiting access to the lowest level of the garage. It is also possible that the free coal tar may be migrating to the river via the bedding material of the storm sewer but there is presently insufficient evidence to support this hypothesis.

In terms of groundwater contamination, the groundwater flow direction is to the east to the drainage system and sump of the adjacent apartment building which is the low point in the area and below Rideau River level. If contaminated groundwater reaches the sump it will be discharged to the storm sewer which will in turn discharge the contaminated water to the Rideau River. Although the impact on the river may not be measurable, it may increase the loading of PAH to the river.

### 5.3.1.5 Sault Ste. Marie - Domtar Inc.

Site Description

The Domtar Chemicals Group formerly Dominion Tar and Chemicals Ltd. has operated a coal tar distillation plant in Sault Ste. Marie since about 1911. The plant distills tar produced by the Algoma Steel Co. to make a wide range of chemicals ranging from naphthalene to creosote and pitch. Domtar's facilities are located at 55 Baseline Road adjacent to Algoma Steel's plant site and slag dump. The Domtar site is separated from the Algoma plant site by the Algoma slip on the St. Mary's River and Bennett Creek and is drained by Spring Creek which is found to the south of the plant site. The 9 hectare site is scheduled to close on July 1, 1988. The area surrounding the Domtar site is primarily industrial land belonging to Algoma Steel.

The Domtar site is currently the subject of an ongoing hydrogeologic study being conducted by Domtar. As an active site, this site was not assessed for potential environmental impact.

### 5.3.1.6 Thunder Bay - Northern Wood Preservers Inc.

#### Site Description

In Thunder Bay, a creosoting plant and a coal tar distillation plant were operated by Northern Wood Preservers Inc. (Northern Tar and Chemical Co. Ltd., Northern Wood Preservers Ltd., Northern Forest Products Ltd.). The coal tar distillation plant was in operation from 1946 to the late 1970s while the creosoting plant began in 1940 and is still in operation today. The plants were located at the north end of Maureen Street adjacent to Lake Superior on reclaimed land. The entire site including wood and tie storage areas occupies about 20 hectares.

The wood preservation operation uses creosote, pentachlorophenol and chromated copper arsenate for the preservation of wood against decay. The Northern Wood Preservers plant preserves lumber for decks and wharfs, railway ties and telephone poles using an oil-borne pressure treating retort.

The area around the plant site has mostly industrial land uses. The wood preservation plant is located on the shore of Lake Superior.

#### Poential Environmental Impact

The Northern Wood Preservers site is an active site and is presently under investigation by the Ministry of the Environment. A control order has been imposed against the company as a result of contaminant discharges to Lake Superior.

### 5.3.1.7 Toronto - Barrett Co.

#### Site Description

The Barrett Co. operated a coal tar distillation and roofing felt plant at the southeast corner of Saulter St. and Lakeshore Blvd. E. from 1921 to 1965. The plant likely operated in association with the Consumers Gas Station "B" gas works and had a street address of 675 Lakeshore Blvd. E. Tar storage, distillation and felt saturation were undertaken at the northern and central parts of the property, warehousing and storage operations were located at the southern end of the property.

Today the Barrett Co. site is occupied by a Greyhound bus garage and parking lot on the north and central sections of the property and a poultry processor on the southern end of the property. The bus garage and parking lot were constructed in 1981/82. The site is located in an industrial-commercial area with vacant land to the west, a wreckers to the south and fuel storage and used car lot to the east. Access to the site is largely unrestricted although the Greyhound property is fenced.

#### Potential Environmental Impacts

Creosote and tar were encountered at this site during redevelopment of part of the site for the Greyhound bus garage in 1981/82. Large quantities of oily contaminated fill were removed from the site and disposed at the Beare Rd. landfill. Crushed stone and fill were added to the site to stabilize the oily ground for construction activities. Ontario Ministry of the Environment observation/inspection reports document occurrences of visible creosote wastes and odour complaints at the site during construction. Creosote was observed seeping into the excavation for the underground diesel fuel tanks and some areas of visible creosote contamination were left on-site and covered. A minor odour of tar detected in a Greyhound parking lot catch basin in conjunction with the above reports indicates tar wastes are buried on-site.

Although contaminated groundwater and soil likely exist at this site, the environmental impacts associated with this waste are not considered significant. With the exception of the diesel fuel tanks all construction at the site is on or above grade and no groundwater collection or drainage systems are in place. Also, there is no groundwater use in the area and the nearest surface water body is Lake Ontario at 250 m to the south. Although some drainage of contaminated groundwater and creosote is likely to utility line bedding materials located near Lakeshore Blvd. E. no tar odours were apparent from the storm and sanitary sewer manholes on Lakeshore Blvd. E.

### 5.3.1.8 Toronto - Dominion Tar and Chemical/Domtar

#### Site Description

In Toronto, the Dominion Tar and Chemical Co./Domtar Inc. operated a coal tar distillation/processing plant from about 1925 to 1973. The plant was located on the east side of Logan Ave. between Lakeshore Blvd. E. (earlier Keating) and Commissioners Rd., had a street address of 801 Lakeshore Blvd. E. and operated in association with the Consumers Gas Station "B" site. The plant produced creosote, pitches and roofing materials from 1925 - 1935. In 1935, a phenol, cresol and xylenol extraction facility was built at the south end of the property. In 1941, in response to war time demand, a phthalic anhydride manufacturing facility was constructed, also at the south end of the property near Commissioners Rd. Tar stills ceased operation at the site in 1959.

The site is now occupied by a recently constructed (1987 - 88) tennis and racquet club on the north and central parts of the property. Expansion of the racquet club to the south and central parts of the property was underway in April, 1988. The most southern part of the property is used as an unpaved parking lot and redevelopment of this property for industrial use is likely. The site is located in a mixed, public use, commercial and industrial area, with parkland and City of Toronto incinerator located to the west, and lumber yards and petroleum storage areas to the east. Access to the site is fenced although unrestricted.

#### Potential Environmental Impacts

Environmental concerns at this site are documented in the files of the Toronto Office of the Ontario Ministry of the Environment and a 1985 consultant's report (Cutforth, White and Associates, 1985) describing a proposed rehabilitation and redevelopment plan for the property. A hydrogeologic study completed as part of the consultant's report identified groundwater and soil contaminated by phenols, light aromatics and polynuclear aromatic hydrocarbons (PAH). This study also shows that groundwater flow prior to site redevelopment was off-site to the north, east, west and southeast. Potential environmental impacts associated with this groundwater flow are lessened by the complete lack of groundwater use in the area of the site.

Today, groundwater flow at the site is likely directed toward the racquet club building as a result of subsurface construction and the installation of a tile drain system to collect groundwater. Collected groundwater is treated at the site using carbon filter units and discharged to the sanitary sewer in accordance with the Ontario Ministry of the Environment and the City of Toronto. Because of these mitigative measures potential environmental impacts associated with the north and central parts of the property are considered minimal.

The southern part of property adjacent to Commissioners Rd. contains some underground tanks and a concrete cistern filled with water and residual creosote or tar. This property is likely to be developed for industrial use and potential environmental impacts in the form of contaminated water and tar dispersal and air quality degradation may result if proper precautions are not exercised during redevelopment.

### 5.3.1.9 Toronto - Imperial Varnish and Colour

#### Site Description

Imperial Varnish and Colour (Imperial Paint and Varnish) operated a paint and varnish works on the north side of Lakeshore Blvd. E. between Logan and Carlaw Streets from 1900 to 1960. In the period 1916 - 1929 Imperial Varnish and Colour processed approximately 900,000 gallons per year of water gas tar from the Consumers Gas Station "B" works. This water gas tar was presumably used as a base for paints and varnishes. The original plant works were located between Logan and Morse Streets and fire insurance plans for the 1935 period show pitch tanks and boiler houses. It is likely that this site stopped using tar as a raw material sometime between 1935 and 1951. In this period, the plant expanded to occupy the north side of Lakeshore Blvd. E. between Morse and Carlaw. The original Logan - Morse St. site was occupied before 1900 by the J.H. Farr Varnish Works.

The entire site is now occupied by Purolator Courier Ltd., who use the two block site as a processing station and parking yard for their trucks. The site is located in a commercial area. A large warehouse occupies the majority of the earlier site between Logan and Carlaw Sts. and a warehouse/office building occupies the former site betwween Morse and Carlaw Sts. All buildings are on grade constructions with no basements or groundwater collection systems.

#### Potential Environmental Impact

Although large volumes of water gas tar were processed at this site, today there is no evidence of buried wastes at the site. The existing buildings were inspected and no visible wastes or odours were detected. The existing buildings were constructed in the mid

1960s. Details of the demolition of the Imperial Varnish and Colour buildings and of the excavation and construction of the existing buildings are however not available.

Based on the site visit and the available information, potential environmental impacts at this site are considered minimal. Potential environmental impacts at this site are also mitigated by the distance to surface water and the lack of groundwater use in the area of the site.

### 5.3.1.10 Toronto - Paterson Co./Barrett Co.

#### Site Description

A coal tar distillation plant and roofing felt manufacturing plant was located at the bottom of Berkeley St. adjacent to Lake Ontario from about 1900 to 1921. The site was originally operated by Paterson Manufacturing Co. Ltd. for the manufacture of roofing paper and felt and later by the Barrett Co. as a distiller of coal tar and a producer of creosote, light oils, heavy tar oils, tarred felts, roofing paints, tarvia, pitch and prepared roofings. The Barrett Co. relocated from this site to the site on Lakeshore Blvd. E. circa 1921.

Today, the site is occupied by an apartment building complex with a street address of 5-33 Hahn Place. Underground parking garages are associated with the complex. The site is no longer on the water front as a result of landfilling of Lake Ontario and is located in a residental/public use area.

#### Potential Environment Impact

During excavation in 1980/81 for the construction of the Place St. Laurent apartment building, oily and tar contaminated soils were encountered. During caisson installation, liquid "oily" contamination was reported (Linneman, 1988) seeping into the caisson excavations. Contaminated fill and soil was removed from the site and trucked to an unknown disposal location. Most of the contaminated soil was removed from the north end of the property close to Berkeley St. A vapour/gas venting system was also installed below the building located at 5-31 Hahn Place.

Although historical evidence indicates that coal tar wastes are likely present in the subsurface soils and that contaminated groundwater likely exists on-site, the potential environmental impacts at this site are not considered severe. The underground parking garages were inspected and no visible or olfactory evidence of wastes was apparent. Although there have been periodic complaints by tenants of the gas venting from the building at 5-31 Hahn Place it is not clear that these odours are derived from coal tar wastes as opposed to landfill materials used to reclaim the land in the late 1800s and early 1900s. Groundwater flow at the site is now directed to the apartment building sumps and some contaminated water may discharge to the storm sewers. This potential impact was not confirmed, as the storm sump was not inspected during the site visit because the sump covers were rusted shut.

### 5.3.1.11 Windsor - Ford Motor Co.

#### Site Description

The Ford Motor Company operated a low temperature coal tar distillation plant as part of their Walkerville operations from 1923 to sometime in the late 1950s. The two hectare site was bounded by Riverside Drive, Belleview, Cadillac and Wyandotte Streets and included a coke oven, bunker house, gas scrubbers, 500,000 cubic foot gasometer and by-products building. The gas produced at the plant was used in forging and heat treating operations, the ammonia sulphate was used as fertilizer, creosote was sold for wood preservation and benzol while the heavy tar fractions were used as gasoline and fuel oil substitutes. The Ford plant differed from previous coke oven practices in that the coal was distilled at a comparitively low temperature which made possible the recovery of a greater percentage of volatiles.

Today the site is owned by Ford and is used as the Ford Motor Co. power plant. The site is fenced with controlled access and is located within a residential and commercial area. The Detroit River is located about 50 m north of the site and 100 m north of the power plant building. The original 1923 power plant building and by-products building are both still standing. Foundations of the coke oven and part of the bunker house and underground concrete tanks are also evident on-site. Bulk fuel storage tanks are now located to the west of the former by-products building. The area of the former gasometer is now the front lawn of the Ford power plant.

#### Potential Enviornmental Impact

No evidence of buried tar waste was observed or reported for this site. The potential human health and environmental impacts for this site are considered low because of this lack of evidence of buried waste, lack of groundwater use in the area, controlled site access, and continued industrial operation. However little information is available describing the subsurface conditions of the site from either recent excavations or redevelopment. Based on excavation history at other tar distillation facilities some tar contaminated soil and groundwater is likely to exist at this site and therefore migration of contaminated groundwater to the Detroit River may be a concern.

## 5.3.2 Creosoting Plants

### 5.3.2.1 Sioux Lookout - Calder Creosoting Co.

Site Description

Calder Creosoting Co. (and possibly Canada Creosoting Co.) operated a creosoting plant 1.6 km east of Sioux Lookout from about 1928 to 1960. The site, including railway tie storage area, was about 20 hectares; the creosoting plant area was about 0.5 hectares. The plant consisted of two 10 m high creosote storage tanks, retort, pump house, loading platform and steel cylinders for creosote application.

Today the site is vacant land located south of the Sioux Lookout - Superior Junction Rd. The area is reported to be marshy with fill and sand and clay overlying bedrock. Surface drainage is from north to south across the site through swales and ditches and eventually to Pelican/Abram Lake. An unnamed stream located 200 m south of site collects site runoff and drains to these lakes. There is likely groundwater use 800 m north of the site associated with one of the residences located north of the railway line. Other residences in the area transport water from the town (lake) supply. This site was not visited by INTERA staff, but was visited by local Ministry of the Environment officials.

Potential Environmental Impact

Conditions and evidence of waste at this site are reported by Ontario Ministry of the Environment staff from a site visit made in May 1988. During the site visit, hardened tar or creosote pitch was observed on surface in several locations across the site and local odours of creosote were evident on site. Given the evidence of creosote waste on site the potential environmental and human health impacts at this site are determined by the potential impact on surface water bodies in the area and the impact on shallow groundwater. Surface water drainage from the site is to a swamp which eventually drains to the unnamed stream. The one potential user of the groundwater is located at a sufficient distance from the site that it is unlikely the well would be affected by the site. With these use restrictions, the impact of the creosote is likely limited to minor surface water impacts and odour on-site.

### 5.3.2.2 Sudbury - Canada Creosoting Co. Ltd.

#### Site Description

In Sudbury, a creosoting plant was located on the south side of Lorne Street between Sutherland and Bulmer Streets. The plant was operated by the Canada Creosoting Co. Ltd. from 1925 to 1942 and Dominion Tar and Chemical Co. Ltd. from 1942 to 1963. The creosoting plant was used to creosote railway ties, paving blocks, and telephone poles. The original property covered 20 hectares.

At present, the site has been developed into a number of commercial buildings including warehouses, bottling plant, office malls, bakery and fitness centre. The commercial buildings extend from Lorne Avenue south to the CP railway tracks. Junction Creek found to the south of the railway tracks, receives most of the site drainage via a series of ditches and swales.

#### Potential Environmental Impact

Waste materials from the creosoting plant have been identified on-site. Creosote was exposed at surface in a ditch in the area of Webbwood Drive. In the excavation of the Loeb Warehouse at 1010 Lorne Street in 1987, creosote material was found in the soil. Analysis of the soil using the MOE leachate extraction test indicated that the soil was contaminated by benzo(a)pyrene.

Based on the evidence of creosote wastes on the former plant site, it is possible that environmental impacts are occurring. The most likely cause of the impact is leachate migration to Junction Creek. The contaminated soil is relatively shallow and any leachate generated from the soil will likely discharge to the drainage ditches.

The ditches in turn discharge to Junction Creek. At least five ditches drain from the creosote plant area to the Creek.

The fact that creosote was exposed at surface may also present a potential impact in that there can be direct human contact with the waste. Creosote is considered a hazardous waste chemical and exposure to the waste should be limited.

### 5.3.2.3 Thunder Bay - Canada Creosoting Co. Ltd.

#### Site Description

A creosoting plant was operated in Thunder Bay by the Canada Creosoting Co. Ltd. from 1940 to 1942 and by Dominion Tar and Chemical from 1942 - 1946. The plant was located on McKellar Island adjacent to the Kaministikwia River, north of Carpenter St. east of 105th Avenue. The entire property occupied about 10 hectares, but the creosoting plant covered 1 - 2 hectares with the rest of the property used for timber storage. Layout of the former plant site is not well documented due to poor historical map and air photo coverage.

Today the property is a petroleum bulk storage area with controlled access. Most of the surrounding land is vacant. Land to the east is also used for petroleum bulk storage and the Kaministikwia River is adjacent to the north of the former plant site.

#### Potential Environment Impacts

Although the creosoting plant was only is operation for about 6 years, waste material remains on-site. The waste consists of creosote tar found at surface surrounding a large diameter water pond. There are no odours associated with the exposed wastes. The plant building foundations and an old steel tank also remain at the site.

Potential environmental impacts are likely to result from surface water runoff and groundwater discharge to the Kaministikwia River and possibly separate phase tar migration to the Kaministikwia River if such tar is present in the subsurface. With waste exposed at surface on the edge of a pond, it is possible that the pond has received leachate from the waste. Similarly contaminated groundwater likely discharges to the pond and water from the pond probably discharges to the river. The overall impact on the river water quality from aqueous phase contaminants is likely to be small considering the dilution effect of the river but sediments in the river or sediments from surface water runoff may be contaminated with material derived from the creosote.

### 5.3.2.4 Trenton - Canada Creosoting Co./Domtar

#### Site Description

In Trenton, a creosoting plant has been in operation from about 1913 until the present at 126 Marmora Street. The property is bounded by Marmora Street, CN tracks to the south, CP tracks to the north and the Trent River on the west. The creosoting plant was operated by the Canada Creosoting Co. Ltd. from 1913 until 1942 when it was sold to Dominion Tar and Chemical/Domtar Inc. who have operated the plant from this date. The plant presently processes railroad ties, bridge timber, and pilings and some lumber for wood preserving utilizing a creosote/oil process or an oil/pentachlorophenol process. The entire site including wood storage areas covers 18 hectares.

The creosoting plant is still active today. The property is surrounded by residences to the east, industry to the north, a police station to the south and the Trent River on the west.

#### Potential Environmental Impacts

The creosoting plant is an active site and therefore was not subjected to an environmental impact assessment. The site is presently under an MOE control order and the property owner is conducting investigations of the property.

## 5.3.3 Roofing Felt and Tarred Paper Product Manufacturers

### 5.3.3.1 Brantford - Brantford Roofing Co.

Site Description

The Brantford Roofing Co. was one of the first roofing felt manufacturers in Canada and operated at 22 Sydenham St. from 1906 to 1954. The plant was later operated by Murray Brantford Ltd. and Domtar Construction Materials. Today, Domtar manufactures asphalt roofing shingles at this plant. Fire insurance plans from 1912 show several tar melting tanks and underground concrete tanks that were likely used for fuel and/or tar storage. Products manufactured in 1949 - 1954 included tar and asphalt saturated rag, asbestos felts and coated sheathings. It is unlikely that coal tar was used at this site after about 1954.

Today, the site is located adjacent to the CN rail line and is in a residential - commercial area with residential land use opposite the plant on the west side of Pearl Street. The original buildings shown on the 1912 fire insurance plan are evident and by 1950 the site expanded to occupy the bounding streets of Sydenham, Pearl and a laneway south of Niagara.

Potential Environmental Imapct

Potential environmental impact associated with the earlier operations of the Brantford Roofing Co. are considered minimal at this site because of the lack of evidence of buried wastes, the lack of below grade construction, the distance to surface water and the apparent lack of groundwater use in the area. In the past 10 years, upgrading of the plant has resulted in excavation in several areas of the plant and these excavations have reportedly not encountered tar wastes. This excavation did however encounter a buried empty concrete tank. Odour identification at this site is complicated by the asphaltic odour emitted from the active roofing plant.

### 5.3.3.2 Hamilton - Building Products Ltd.

#### Site Description

Building Products Ltd. operated a roofing felt and tarred paper products manufacturing plant from about 1910 to about 1970. Coal tar use at this site was likely restricted to operations up to the mid 1950s. In this period reported products were prepared roofing, tar and asphalt saturated rag and asbestos felts and tar and asphalt saturated and coated sheathing. Plant layout is not well defined for this site as a result of poor historical map and air photo coverage.

Today the site is a controlled access (fenced) storage yard of the Stelco Frost Works. Storage and warehousing of vinyl chain link fence and welded fabrics is now carried out in the area of the former storage tanks and manufacturing building. The site is located in a combined heavy industrial, commercial and residential area, with commercial and residential land use on the north side of Beach Rd. and industrial use to the east, west and south of the site.

#### Potential Environmental Impact

This site has a low potential environmental impact primarily as a result of a lack of evidence of buried waste and the current controlled access, industrial land use. The site was visited and no evidence of visible waste odour or water pollution was apparent. Most of the former site is now a paved storage yard. Excavation in 1969 for installation of new storm sewers also did not report buried waste at the site. The potential environmental impact at this site is also mitigated by the lack of groundwater use in the area and the distance to surface water.

### 5.3.3.3 Cornwall - Domtar Ltd.

#### Site Description

In Cornwall, Domtar Construction Material Ltd. used a tar impregnated cardboard material to make a waterproof pipe. This operation began in about 1947 and continued until about 1969. The plant was located on Seventh Avenue in the block bounded by Seventh, Cumberland, C.N. Railway and Highway 2. When in operation the property was about 3.2 hectares in area.

The site is presently used for industrial purposes including manufacturing and waste disposal companies. One of the on-site buildings is vacant and the building and adjacent property is for sale. The property is fenced but access is unlimited. The City of Cornwall is planning to extend Eleventh Avenue across the north boundary of the site on the north side of the railway tracks. Land use in the surrounding area consists of residential land use to the north and east and commercial use to the west and south. The property is drained to storm sewers by drainage ditches in the northwest and northeast corners.

#### Potential Environmental Impact

At this site, waste tar and off-grade and broken pipe were disposed on-site. Tar in piles is exposed in the northwest corner of the site while waste pipe covers the ground in the northeast corner. The waste is exposed at surface and susceptible to direct contact. There is evidence of bicycle paths through the waste piles indicating that the area is a play area for children. A creosote odour is also found in the area of the tar piles. In 1986, the Ministry of the Environment sampled surface runoff from the site and the waste piles and found evidence of coal tar components. In the spring of 1987

Domtar sampled the surface water in the area of the site including the drainage ditches. The results indicated that PAH at trace levels are found in the sediments and surface water.

The potential environmental impact exists primarily from direct contact with the exposed wastes. The waste material contains hazardous materials and dermal contact or inhalation of dust or vapours could represent a health risk.

Surface runoff and groundwater are probably affected by the waste but the impact is likely negligible. Surface water drains to a storm sewer and the Domtar sampling indicates that, at the inlet to the storm sewer, the PAH concentrations are non-detectable. There are no users of the shallow groundwater, although the deeper groundwater in the bedrock, which is confined by overlying clay and till, has industrial users in the area.

### 5.3.3.4 London - London Roofings Ltd.

#### Site Description

In London, a tar paper and roofing felt industry was located at 1350 Trafalgar Road on property bounded by Trafalgar, Highbury Road and the CN railway. The industry was in operation from about 1939 and continued into the 1970s but it is likely that the use of coal tar ended by the mid to late 1950s. The roofing tar plant was run by a number of companies including Canadian Roofing Ltd. (1939 - 1940), London Roofings Ltd. (1940 - 1943), Viceroy Manufacturing Co. (1943 - 1948), Bishop Asphalt Papers (1948 - 1958), and Northern Roofing Co. (1958 - 1970s). The operation was relatively small occupying about 0.5 hectares.

Today the property has mostly commercial use with occupants including a roofing contractor, a garage and a warehouse. Some of the original buildings are still in use. Adjacent land uses are primarily commercial and residential.

#### Potential Environmental Impact

There have been no reported problems associated with this site. Waste materials, odours or water pollution were not observed at the site during the site visit. However, a small disposal area was identified on the site and operational from about 1942 to the 1960s. Some waste tar or roofing materials may have been disposed in this dump which was located adjacent to the CN tracks. This former disposal area is now part of an unpaved parking lot.

Given the lack of visible and olfactory evidence of waste, the present commercial land use and no surface water or groundwater use in the area, it is unlikely that this site poses a potential environmental or human health hazard.

### 5.3.3.5 Toronto - Paterson Manufacturing Co.

#### Site Description

From 1884 to 1898, Paterson Manufacturing Co. operated a roofing felt works at 297 - 307 Front St. E. in Toronto. The plant manufactured dry and tarred felt, pitch, roof paint, chemicals and rosin. The plant was operated in association with the Consumers Gas Station "A" gas works and was located adjacent to the Station "A" tar wells. Expansion of the Station "A" plant in about 1900 occupied the site with gas holders and Patersons moved to the Berkeley St. site (now 5 - 33 Hahn Place). The site is now fully occupied by the Administration/Service Centre of the Toronto Public Library. The site is located in a commercial area and site access is restricted.

#### Potential Environmental Impact

Because this site was later occupied by the Station "A" gas works, the site has been previously described and assessed in the INTERA (1987) report on former coal gasification plant sites. Relevant information on this site is taken from the earlier report.

Excavations in 1986 for the construction of the Toronto Library building and subsequent site investigations in 1986 and 1987 confirmed the presence of buried coal tar wastes at this site. Although coal tar wastes are likely still on-site, the potential environmental impact at this site is considered minimal because of the lack of groundwater use, low potential for future excavation and distance to surface water.

### 5.3.3.6 Toronto - Toronto Asphalt Roofing Manufacturing Co.

Site Description

A roofing felt manufacturing plant operated at 15 Oxford Dr. from 1922 to about 1978. The plant was initially operated by Toronto Asphalt Roofing Manufacturing Co. to 1948 and later by the Canadian Gypsum Co. Ltd. Early fire insurance plans show that this site had a manufacturing plant and warehouse. Products identified in 1949 - 1954 included tar and asphalt saturated and coated sheathings. It is estimated that coal tar and coal tar pitch were not processesd on this site after the early 1950s although coal tar was reportedly stored on-site in 1964. The site ceased operation 1978.

In 1980/81, a high rise apartment building was constructed on the site. The site is now situated in a residential area and backs onto the CN rail line.

Potential Environmental Impact

This site was inspected and no evidence of buried wastes were detected. The apartment building has underground parking garages and both parking garage catchbasins and the building storm water sump were inspected and found to be clean and free of tar wastes. Also, no subsurface wastes were reported during excavation and construction of the apartment building.

Based on the observed conditions and reported information, this former roofing felt manufacturing site is not considered to pose any significant environmental or human health impact.

### 5.3.3.7 Windsor - Acme Roofing Co.

#### Site Description

A roofing felt and tarred paper products plant was located in Windsor from 1917 to 1923. The Acme Roofing Company which produced prepared roofing and pitched and tarred asphalt was located at 124 Walker Road (now 866 Walker Road) on the southeast corner of Walker and Edna Street. The plant was a small operation occupying 0.5 hectares.

Today, the property has primarily commercial uses, with occupants including printing, electrical and glass companies. The original building remains on the property. There is no surface water in the area.

#### Potential Environmental Impact

On this site, there has been no reports of waste materials and nor are there visible wastes or odours; however, there has been no excavations on the property. The environmental problems associated with the operation of the tarred paper plant are expected to be negligible, based on the short operation period, the commercial land use, and the lack of evidence of buried wastes.

### 5.3.3.8 Windsor - Canadian Roofing Manufacturing Co. Ltd.

Site Description

On the southwest corner at McDougall and Sheppard Streets, the Canadian Roofing Manufacturing Co. Ltd. operated a tar paper and roofing felt plant. The plant produced prepared roofing, tarred felt, asphalt paint, and asphalt cement. From 1914 to 1924, the plant was in operation. In 1924 the manufacturing plant was closed, the business was combined with the Brantford Roofing Co. Ltd. and the Windsor property was used only as a warehouse. The former plant property covered about 0.9 hectares.

Today some of the original buildings are still in use and the concrete pad used for the tar storage tanks is still evident. The property is occupied by a cable T.V. company and an auto body shop. Part of the property is fenced with controlled access.

Potential Environmental Impact

The property has had no reports of buried wastes on-site and the site investigation did not identify problems on the site. Given the commercial land use, the lack of evidence of buried wastes and the short operating period, it is unlikely that this property has any significant potential environmental impacts associated with the former roofing manufacturer.

## 5.3.4 By-Product Charcoal and Coke Oven Plants of the Iron and Steel Industry

### 5.3.4.1 Hamilton - Dofasco Inc.

Site Description

Dofasco Inc. has operated a coke oven product plant north of Burlington St. between Ottawa North and Kenilworth North since 1951. Dofasco currently operates three by-product coke plants on this property. Coal tar generated by these coke plants has always been sold for distillation and reprocessing. Tar generated by Dofasco was sold to Domtar (Toronto plant until 1960 and Hamilton plant from 1958 to the present) and to U.S. companies. Tar decanter sludge was previously mixed with slag and other residuals to reclaim various areas of Dofasco bay front property and to act as interim cover at regional landfill sites. Since 1980 decanter sludge has been blended with coal mix and charged back to the coke ovens.

The Dofasco site is located on Hamilton Harbour in a heavy industrial area. On-site inspections were not performed and as an active site, this site was not assessed for potential environmental impact.

### 5.3.4.2 Hamilton - Stelco Inc., Hilton Works

Site Description

The Steel Company of Canada Ltd. (Stelco Inc.) has operated coke ovens and by-product plants at their Hamilton Hilton Works site since 1918. The coke ovens and by-product plants are located on the western part of the steel mill complex adjacent to the Hamilton Harbour at the northern end of Wilcox St.

Two by-product plants are presently in operation: one since 1918 and enlarged in 1947 and one since 1972. Four coke oven batteries are presently in operation, two batteries were dismantled in 1951 and 1953 respectively and one battery has been idle hot since 1981. According to Stelco, tar from the two by-product plants is usually sold for outside processing however some of the tar is recycled to the blast furnaces in place of coke. Tar sludge from tar decanters is currently, in part, processed through blenders and sold or burned with the tar. Excess material and tank cleanouts are sent to an approved landfill for disposal.

The Hilton Works is an active site and has not been assessed for potential environmental impact.

### 5.3.4.3 Nanticoke - Stelco Inc.

Site Description

The Lake Erie Works of Stelco Inc., located in Nanticoke, includes a coke oven and by-products plant. The plant is located on Regional Road No. 3 at Lake Erie and has been in operation since 1981. The coke oven battery includes 45 ovens and one by-product plant covering an area of about 10 hectares. The tar from the by-product plant is sold for outside processing into saleable products such as creosote, roofing materials, etc. Tar sludge is presently disposed to an approved landfill but a method to recycle the sludge is under development.

The steel works has controlled access and is surrounded by rural/residential land use. Lake Erie is adjacent to the site to the south.

As an active site, an environmental impact assessment was not completed for this property.

### 5.3.4.4 Sault Ste. Marie - Algoma Steel Corporation

Site Description

The Algoma Steel Company Ltd. operated a coke oven by-product plant in association with their steel mill in Sault Ste. Marie from 1911 to the present. The coke ovens and the by-product plant are located off of Baseline Road (formerly Wilde Avenue) adjacent to and on the east side of the Algoma slip. The by-products plant produced coal tar, sulphuric acid, benzol, toluol, naphthalene and other related products during its history. Some of the coal tar was used by Domtar, located west of the Algoma slip, in their tar distillation plant. Also located west of the Algoma slip is the slag dump which was built on reclaimed land out into the St. Mary's River. Various areas within the slag dump are used for disposal of various types of plant wastes.

The area to the north of the coke ovens is drained by a ditch that runs towards the north end of the slip. Bennett Creek also drains part of the Algoma property to the west of the slip.

The land use surrounding the Algoma coke oven area is primarily industrial although residential areas are found to the north.

Potential Environmental Impact

The Algoma site is a very large industrial complex located immediately adjacent to the St. Mary's River. In the past, PAH contamination, which is suspected of originating from the Algoma Plant site, has been found in the sediments and aquatic life of the Algoma Slip and the St. Mary Rivers adjacent to the plant site and the slag dump. Coal tar contamination has also been found as free product in Bennett and Spring Creeks and in the area of the Domtar plant site. Both of these creeks drain to the Algoma slip and therefore it is possible that coal tar contaminants may have been discharged to the slip.

The MOE is presently conducting a study to assess the presence of toxic contaminants in the groundwater, seepage and surface runoff associated with the slag disposal site. Algoma Steel and Domtar are presently investigating and remediating contaminants in the area of Spring and Bennett Creeks.

## 5.3.5 Industrial Manufactured Gas Plants

### 5.3.5.1 Cambridge (Preston) - Pattinson Woollen Mill

#### Site Description

A woollen mill operated by Geo. Pattinson and Co. used a gasification plant to provide gas for lighting during the period 1870s to the 1890s. The gas plant was a small facility at the edge of the mill property and occupied only about 0.1 hectares. The gas plant is reported to be oil gasification but it may have included coal as well. The mill and gas plant were located at what is now 498 Eagle St. N. adjacent to the Speed River. The gas works were demolished in the 1890s for construction of what is today an office building.

The property today is used for industrial purposes for the manufacture of thermoplastic molding compounds. Several original buildings from the 1890s remain on-site and have been incorporated into new buildings and additions. The land surrounding the property has industrial/commercial land uses or is vacant. The Speed River is adjacent to the site to the north.

#### Potential Environmental Impact

The Pattinson Woollen Mill was a large woollen mill but the gas works was relatively small. There have been no reported problems with wastes on-site, and no visible wastes, odours or water pollution were observed.

Given the lack of evidence of waste and the small operation it is unlikely that the gas plant has resulted in a significant impact on the environment. If an impact were to occur the Speed River which is adjacent to the site would be the most likely receptor. Municipal water wells are located on the north (opposite) side of the river at a distance of about 300 m but it is unlikely that these wells would be impacted by wastes from the gas plant.

### 5.3.5.2 Ottawa - Fuel Testing Station/Fuel Research Laboratories

#### Site Description

The Mines Branch of the Federal government operated a fuel testing station and a fuel research laboratory at 552 and 562 Booth St. respectively. These facilities undertook semi-industrial scale coal carbonization studies to assess Canadian coal in the approximate period 1911 to the 1940s.

A Westinghouse suction bituminous coal gas producer was operated at 552 Booth St. The original building at 552 Booth St. was rebuilt in the late 1920s. A two ton by-product coke oven was also used at the rear of the building at 562 Booth St. in the 1920s and 1930s. The original building located at 562 booth St. is still in use.

Today the buildings at 552 and 562 Booth St. are part of a complex of government buildings used by the Department of Energy, Mines and Resources. The buildings at 552 and 562 Booth are used as government offices and laboratories. There is no groundwater use in the area and the closest water body is Dows Lake located 500 m south of the site.

#### Potential Environmental Impact

The potential environmental and human health impact at this site is considered minimal based on the lack of evidence of buried waste, and likely small volume of by-product tars generated by the intermittent use of the gas producer and coke oven. Potential environmental impacts are also mitigated at this site by lack of groundwater use in the area and the distance to Dows Lake. Potential environmental impacts at the site are also complicated by the historic use of the land between 552 and 562 Booth for the underground storage of liquid petroleum fuels.

### 5.3.5.3 Niagara Falls - American Cyanamid Co.

#### Site Description

The American Cyanamid Co. operated a coal gasification plant in Niagara Falls, Ontario from at least 1916 to 1920 as part of their Fourth Avenue Fertilizer works. The manufactured gas plant occupied a small area of 0.7 hectares and based on 1916 fire insurance plans had a gas house, tar well, gas purifiers and gasometer. The use of the gas plant is uncertain although it may have been used in the manufacture of calcium cyanamide fertilizer or to underfire lime kilns. Calcium cyanamide ($CaCN_2$) was manufactured by reacting nitrogen with calcium carbide which was manufactured from coke and lime in an electric furnace. Nitrogen (ammonia) and coke are both by-products of coal gasification.

The former gas works is now occupied by a furnace house as part of the Cyanamid Canada Inc. Fourth Avenue plant. Access to the site is restricted and the plant is surrounded by vacant land to the north, railway to the east, residential property to the south and parkland and commercial land to the west. On-site inspections of the former gas works area were not performed.

#### Potential Environmental Impact

Potential environmental impact at this site is complicated by the presence of on-site contamination of groundwater and soil with cyanide. The site and surrounding area has been the subject of an MOE preliminary hydrogeologic study and waste area identification and assessment studies completed by consultants for the property owner.

The potential health and environmental impact resulting from the former gas works are expected to be low because of the lack of groundwater use, distance to surface water, controlled site access and continued industrial operation. Visible tar wastes were historically reported as a tar residue in a geotechnical borehole drilled for construction of the furnace house that subsequently was built on the gas works site. Odours were detected in the vicinity of the site but these were associated with the present operation of the plant and not the former gas works.

### 5.3.5.4 North Bay - Pintsch Compressing Co. Ltd.

#### Site Description

A Pintsch gas (oil pyrolysis) plant was located in North Bay at 535 Stanley Street near to the corner of Regina Street. The plant was operated by the Pintsch Compressing Co. Ltd. from 1910 to 1956 to supply gas to railway cars.

Today the site is occupied by a manufacturing company that produces and repairs crushers for the mining industry. Several additional buildings are found on the property and the original gas plant building is still in use. Access to the site is controlled by fences and a gate. Land use around the property consists of primarily industrial use although a park is located to the south.

#### Potential Environmetal Impact

This site has had no reported environmental impacts nor is there any evidence of wastes or odours on-site. A building sump located adjacent the former gas plant building was also free of odours.

Based on the industrial land use, controlled access and no evidence of on-site wastes, the former Pintsch gas plant site is unlikely to create an environmental impact.

### 5.3.5.5 Toronto - Pintsch Compressing Co.

Site Description

The Pintsch Compressing Co. operated an oil pyrolysis (Pintsch gas) plant in Toronto in the area south of Peter Street between Front St. W. and Lakeshore Blvd. W. from about 1906 to 1960. The manufactured gas was used to illuminate railway cars.

The site today is under development for Toronto's new domed stadium. Most of the area is Canadian National railway land. Land uses in the surrounding area include commercial (office tower), recreational (CN Tower), and industrial (CN railway) uses. The Toronto Harbour in Lake Ontario is located approximately 200 m south of the former site.

Potential Environmental Impact

There have been several recorded instances of evidence of wastes associated with the former Pintsch gas plant over the last three years. An investigation in 1985 of the harbour front (Brown Associates Ltd., 1986) found oil staining and fuel odours on surface soil samples from a borehole drilled in the vicinity of the Pintsch gas plant. During the construction of the domed stadium in 1986 underground tanks were removed from the gas plant site and the tanks were found to contain fluid with hydrocarbon odours. Most of the contaminated soil was removed during the construction of the stadium.

Given that most of the contaminated soil and the underground tanks were removed for disposal it is unlikely that the former Pintsch gas plant represents a significant environmental problem. Environmental impacts from this site are expected to be minimal.

### 5.3.5.6 Windsor - Union Natural Gas

#### Site Description

The Union Natural Gas Company operated an oil gasification plant in Windsor, Ontario for the purpose of intermittenly producing manufactured gas to supplement natural gas supplies. The plant was operational from 1929 until the 1950s and located on 3rd Concession Road (now North Service Road) and bounded by Howard Avenue and Grand Marais Road. When operational, the Union Natural Gas site included both natural gas facilities (storage spheres, compressors, metering house) and manufactured gas facilities (gas house, gasometer, tar separators, gas scrubbers and tar storage tanks). The site was about 5 hectares in area.

The site today is still partially occupied by Union Gas while the north east part of the site is used by a construction company. The concrete base of the manufactured gas holding tank and one of the original buildings remain on-site. Adjacent land use includes parkland and residences to the north and commercial businesses to the east and west and the E.C. Row Expressway to the south. A small creek runs through the site.

#### Potential Environmental Impact

The inspection of this site did not identify the presence of any type of wastes in the area of the site. The gas holding tank base is exposed and clean. These were no odours detected in the former gas plant building. An inspection of the creek including several drainage pipes adjacent to the site did not provide an indication of water pollution.

Based on the lack of evidence of wastes on-site and the apparent negligible impact on the creek this site is not considered to represent a significant environmental impact.

## 5.3.6 Wood Distillation Plants

### 5.3.6.1 Deseronto - E.W. Rathbun Co.

Site Description

In Deseronto, the E.W. Rathbun Co. operated a chemical plant located on Main Street between First and Second Streets on the Bay of Quinte. The plant was a charcoal oven by-product plant and a wood distillation plant that produced wood alcohol and by-products including tar oil, wood pitch and wood creosote. E.W. Rathbun Co. operated the first wood distillation chemical plant in the province from 1889 to 1902 and then was taken over by the Standard Chemical Co. from 1902 to 1920. The plant was also associated with the Deseronto Gas and Water Co. which operated a coal gasification plant on adjacent property (see INTERA, 1987).

The chemical plant occupied about 1 hectare of land on the shore of the Bay of Quinte. The property presently holds a furniture factory, and two residences. The second residence was constructed in 1987. Remanants of the chemical works and the gas plant are found on-site with the outline of a gas holding tank and foundations of the chemical works still apparent.

Potential Environmental Impact

The potential environmental impacts of the chemical works are combined with the gasification plant because the two processes are similar in terms of the waste products. Potential environmental impacts from the chemical works and gas plant are most likely to occur if waste materials remained on-site. The potential for buried wastes on-site is evidenced by several historical occurrences. During construction of a house in 1951, it was necessary to let the foundation excavation stand open for about one month to vent gases from the soil. The excavation was about 1.2 to 1.5 m below the surface and about 0.6 to 1.0 m into bedrock. The location of the house is about the same location as the former gas plant buildings. During the site visits, the house basement was inspected and was found to be free of odours with a sump that contained clean, odourless water.

Another possible indication of waste on-site is the presence of the gas holding tank. Apparently in 1949, the foundation of the tank was filled in. It is possible that coal tar waste may remain at the base of the foundation.

The most likely health effects or environmental impacts caused by excavation into waste material is from dermal contact and vapour inhalation or from the release and contaminant migration of either coal tar or contaminated groundwater to the Bay of Quinte. It should be noted, however, that because the chemical plant closed in the 1920s, most of the significant environmental impacts may have occurred in the past.

### 5.3.6.2 Donald - Donald Wood Products Ltd.

#### Site Description

Donald Wood Products Ltd. was located on Part Lots 6 and 7, Concession 1, Township of Dysart, in the County of Haliburton in the Village of Donald. The plant was owned by Donald Wood Products from 1908 to about 1915 and then by the Standard Chemical Company until 1945. The plant produced a variety of wood extracts from wood distillation including charcoal, wood alcohol, acetate of lime, wood tars, creosotes and natural phenols.

The plant was located on the bank of the Burnt River and occupied about 2 hectares. During its peak the company employed over 60 people and was one of the largest wood distillation plants in Ontario. Today the concrete framework of the plant buildings remain on the site but the property is vacant and largely grassed over. The surrounding area is rural with only a few houses located close to the site.

#### Potential Environmental Impact

The Donald Wood Products site has had environmental problems in the past. In 1979, a water well drilled by the property owner and located on the opposite side of the river was found to be contaminated with phenols. The well was 56 m deep and terminated in granite bedrock. The well water contained phenols at concentrations of 50 to 240 ppb. The property surrounding the plant site was found to contain patches of tar-like deposits with strong odours of creosote. Studies by MOE (1983) indicated that the tar and on-site soils and vegetation contained PAH, phenols and volatile organics (i.e., benzene). During the site visit, it was noted that wastes including tar, cinders, ash and charcoal were visible surrounding the plant. In the area of the tar patches a slight creosote odour was detected and in the area of some of the buildings a wood alcohol odour was noticed.

In terms of environmental impact it is quite likely that the Donald Wood Products site has caused groundwater contamination in the area of the plant site as evidenced by phenol contamination in a well adjacent to the site. The contaminated well, however, is no longer in use but the extent of groundwater contamination and the impact on other groundwater users is unknown. The shallow groundwater likely discharges to the Burnt River and therefore there may be an impact on the river. Phenol concentrations in the river however indicate that dilution may be sufficient to reduce the contaminated groundwater to nondetectable levels. The river is used as a domestic water supply and for recreation.

The environmental impact of this site is likely limited by its rural setting and limited access. Although groundwater is contaminated there are no apparent users in the immediate area and the impact on surface water is apparently negligible.

### 5.3.6.3 Fenelon Falls - Standard Chemical Co.

Site Description

In Fenelon Falls, a wood distillation plant was operated by the Standard Chemical Co. Ltd. from about 1903 to 1912-16. The plant produced wood alcohol, acetate of lime, charcoal, acetic acid, acetone and other chemical products. The site was about 1 hectare in area and was located at the west end of Francis Street between Bond and Francis Streets at the shore of Cameron Lake.

The former plant site is presently a town park called Garnet Graham Lakeside Park which includes a beach and playground with uncontrolled, recreational land use. The park also contains a Ministry of the Environment water treatment plant that supplies water to the town from an intake pipe approximately 200 m out in Cameron Lake. The land use east of the site is primarily residential.

Potential Environmental Impact

There is very little evidence to indicate the former presence of the chemical plant because of landscaping of the park. There are no visible wastes or odours on the plant site. Potential environmental impacts may occur from the discharge of waste leachate to the lake and beach if waste material remains on-site but dilution of the leachate by lake water would negate any harmful effects to users of the beach. If waste materials remain on-site, it is more likely that most of the significant environmental impacts occured in the past. Based on the short operating period of the chemical plant and the lack of evidence of wastes on-site it is unlikely that this site represents a significant environmental problem.

### 5.3.6.4 Lindsay - Canadian Industrial Alcohol Co. Ltd.

Site Description

A wood distillation plant was operated in Lindsay by the Canadian Industrial Alcohol Co. Ltd. from about 1930 to the early 1950s. The plant was located north of Eglington Street adjacent to the Scugog River and east of the Canadian National Railway.

At present, the site is vacant but is being developed for a subdivision. Excavation has begun for the construction of roads and a number of boreholes and test pits have been completed on-site. A gabion wall has been placed along the river bank at the river water level. A steel tank has been excavated from the site.

The former chemical plant occupied about 1.5 hectares adjacent to and west of the Scugog River. The land use to the north and south is largely vacant but there are plans for development of these areas. To the west of the site there is residential development.

Potential Environmental Impact

Excavation for roadways, test pits and boreholes have uncovered wastes from the wood distillation operation at this site. The wastes consist of cinders, ash, charcoal and slaked lime. There are also odours of wood alcohol in the area of exposed waste. Most of the waste material is found adjacent to the river. Wood tar and creosote have not been identified on the site.

The most likely impact of this site would result from the leaching of the waste material and the contamination of the groundwater which would then discharge to the river. Shallow groundwater is not used in the area. While the impact of contaminated groundwater discharge to the river is likely to have a negligible impact on the river water quality because of dilution, the river sediments may adsorb many of the contaminants. Recent excavation of the bank may have resulted in contaminated sediments being dispersed down river.

### 5.3.6.5 Lindsay - Hodgson Bros. Chemical Co. Ltd.

Site Description

The Hodgson Bros. Chemical Co. Ltd. operated a wood distillation chemical company adjacent to the Scugog River in Lindsay. The site was located on St. Paul Street west of Denniston Street. The company operated from 1919 to the 1930's on 1.2 hectares of property.

Today the site is a town park with nature trails and playgrounds with unrestricted access. The former chemical plant is still apparent from ruins and foundations in several locations. Adjacent land use is mostly residential to the north, east and south with the Scugog River to the west.

Potential Environmental Impact

Potential environmental impacts would occur if there are leachable wastes remaining on-site which would cause contaminated discharges to the river. At present there is evidence of cinders, ash and charcoal on the site but these are relatively innocous wastes. There is no evidence of tar or odours on-site to indicate the presence of hazardous wastes. Leachate from the identified wastes would migrate to the river, however the impact is likely to be insignificant because of the dilution provided by the river and the nonhazardous nature of the identified wastes.

Based on the current landuse (parkland) and the lack of evidence to indicate harmful wastes on-site the impact from this site is considered to be minimal.

### 5.3.6.6 Longford Mills - Standard Chemical Co.

#### Site Description

In Longford Mills, off of Longford Road (Lot 20, Broken Frontage, Rama Township) at Lake St. John, the Standard Chemical Company operated a wood distillation plant. The plant was in operation from the early 1900's to about 1943 and produced a variety of wood chemical products including creosote oils and wood tars. When in operation the plant occupied about 1 hectare.

The property is presently occupied by Domtar Chemicals Co. and the plant site is producing specialty chemicals. Some of the original buildings are still in use. The industrial site has controlled access with a fence and gates. Surrounding the plant the land use is residential to the west and mostly vacant, rural land to the north and south. Lake St. John is located at the eastern boundary of the plant.

#### Potential Environmental Impact

The potential environmental impacts, if any, of the former Standard Chemical site are likely to be combined with those of the present Domtar Chemical plant. The impacted areas will be Lake St. John and local domestic water wells. Several local water wells are within 300 m of the plant site and typically shallow, less than 20 m in depth, in limestone bedrock. The wells however are likely upgradient with most of the shallow groundwater discharging to Lake St. John.

There is evidence on-site of waste from the wood distillation plant including cinders, ash, and charcoal and in the area of exposed waste there is a slight wood alcohol odour. No evidence of tar was noted around the site and problems of water pollution were not reported or observed.

### 5.3.6.7 Parry Sound - Standard Chemical Co.

Site Description

The Algoma Lumber and Chemical Co. and later Standard Chemical Co. operated a wood distillation/charcoal by-product plant in Parry Sound from 1909 to about 1924. The charcoal by-product plant was operated in association with the Standard Iron Co. Ltd. which ceased operations by 1917. The site was located about 300 m north of Isabella St. between the split in the CPR tracks and Georgian Bay. The 1924 fire insurance plan shows an oven house, charcoal cooling sheds, limeshed, and still house.

Today the site is unused and is surrounded by bush. Georgian Bay is located about 100 m west of the site. Ruins of the former buildings are evident on-site. Cinders and ash are also visible at the site. Access to the site is unrestricted.

Potential Environmental Impact

Potential human health and environmental impact at this site are considered minor, based on the lack of evidence of buried wastes and lack of potentially impacted groups or resources. The remote location, minimal land use and lack of groundwater use in the area contribute to a low potential for environmental and human health impact.

### 5.3.6.8 Sault Ste. Marie - Algoma/Standard Chemical Co.

Site Description

From circa 1900 to about 1926, a charcoal by-product/wood distillation plant was operated on a site that is now part of the Algoma Steel Company Steel Mill. The plant was initially operated by the Algoma Steel Co. Ltd. until 1912 and by the Standard Chemical, Iron and Lumber Co. until 1926. The plant was used initially to make charcoal for use in the steel making blast furnaces and later to produce wood distillation by-products such as wood alcohol, acetone, creosote oils and wood tars. The plant was located adjacent to the St. Mary's River about 350 m east of the Algoma slip.

The former site is now replaced by the Algoma Steel Mill.

Potential Environmental Impact

The potential environmental impacts of the wood distillation plant are impossible to distinguish simply because the current land use obscures any evidence of the former plant.

### 5.3.6.9 South River - Standard Chemical Co.

#### Site Description

The Standard Chemical Company operated a wood distillation plant in South River from 1903 to 1954. The plant which was located off of Ottawa Avenue at Forest Lake, was also used to make charcoal by the Charcoal Supply and Sales Co. and the Beaver Charcoal Co. from 1955 - 1967. The wood distillation plant was used to make wood chemicals such as acetic acid, acetone, methyl alcohol, creosote oils and wood tars.

Today, the 2-3 hectare site sits vacant, with remanants of the plant including foundations and walls still apparent. A development project, which was to include a small resort, townhouses and a recreation center was planned in 1977, deferred in 1983 and recently reviewed. Adjacent to the site on Ottawa Avenue are houses, a municipal water pump house and wells, and a commercial business. The property is adjacent to Forest Lake which is part of the South River.

#### Potential Environmental Impacts

The Standard Chemical site in South River may cause an impact on Forest Lake and the municipal wells because wastes, including tars, were found on-site. Waste tar, cinders, ash and charcoal were observed during the site visit, adjacent to the river on the north part of the site, in several locations. In addition, a tar pit existed on the site in 1977 but was not apparent during a site visit. There are also unconfirmed reports of tar on the bottom of the lake. Wood alcohol odours in the area of the foundations were detected.

The primary concern on this site is the proximity of the site to municipal water wells which are located within 300 m of the site. The wells are reported to be at least 20 m deep in sand. Buried wastes on the plant property may contaminate the groundwater which could affect the water quality of the wells. The wells, which are high production wells are located in sand and this material could easily transmit leachate from the site to the wells. High capacity wells would also create significant drawdown which would decrease the transit time from the site to the wells.

The other concern regarding this site is the impact the wastes may have on the lake. The tar pit was located adjacent to the lake and tar wastes are present beside the lake. If the unconfirmed reports of tar in the lake are true there may be an environmental impact in that the lake sediments and possibily aquatic biota will be contaminated.

### 5.3.6.10 Thornbury - Standard Chemical Co.

#### Site Description

In Thornbury, the Standard Chemical Co. operated a wood distillation plant on property located beside the Beaver River and bounded by Bay Street, Mill Street, Poplar Street and the river. The chemical plant was in operation from 1916 to 1925 on about 4 to 5 hectares.

The site is presently vacant with some of the original buildings remaining on-site. The site is planned for development with condominiums and apartments to be constructed in the near future. The area surrounding the property is primarily residential.

#### Potential Environmental Impact

The Standard Chemical site in Thornbury has evidence of waste on-site including tar, cinders and ash. Since the site visit the property owner excavated 14 test pits at the site to evaluate subsurface conditions. Cinders and ash were reported in many of the test pits and solidified tar was observed in the area of the building foundations (Jordan, 1988). Chemical analyses of the tar and some contaminated soil showed the presence of PAH. The property owners are developing a decommissioning plan for this site.

Although some tar was evident at this site, the tar was reported to be in a confined area and in a semi-solid state and therefore migration of tar is unlikely. Because of the small volume of tar observed at the site, the environmental impact from leachate generation and migration to the adjacent river is considered to be minimal.

### 5.3.6.11 Trout Creek - Dominion Wood and Lumber Co.

#### Site Description

Dominion Wood and Lumber Co. Ltd. operated a wood distillation plant in Trout Creek for an uncertain period circa 1920. The plant was located south of town and east of the C.N. railway on Concession 1, Parcel 3489 N.S., municipality of the Town of Trout Creek. The plant occupied about 1 hectare.

The plant site is presently rural vacant land and was once used as a sand and gravel pit during the construction of Highway 11. There is little evidence of the former plant except for a mound from a charcoal cooler. Several streams, one flowing from the east and one from the south are adjacent to the former site.

#### Potential Environmental Impact

The environmental impacts resulting from this site are likely to be negligible primarily because much of the property appears to have been excavated for fill material during the construction of the highway, the plant was in operation for only a short period of time and the area is rural, vacant land. The nearest well is likely greater than 400 m east of the site.

# 6. RECOMMENDATIONS

Recommendations are grouped into this section as opposed to Section 5 with the individual site descriptions because many of the recommendations for further action at each site are similar. The recommendations are developed only for the 35 former industrial sites identified in this study as per the terms of reference of the study. Many of the active sites have ongoing site assessment studies funded by the property owners and all are being looked at by the Ontario Ministry of the Environment.

For each former industrial site it is recommended as a minimum that the property owner and the municipality be notified that the site was formerly used by an industrial operation that produced or used coal tar or related oil and wood tars and that through disposal or spillage, tar wastes may be present in the subsurface soils. If future excavation is planned at any of these sites the property owner or developer should contact the local office of the Ontario Ministry of the Environment.

For many of the sites, particularly the coal tar distillation and creosoting plants, there is evidence that tar wastes are present in the subsurface soils. For six of these sites, the potential environmental impacts are minimal as a result of a lack of receptors for impact from the waste. Sites where wastes exist but the potential impacts are likely minimal include: Barrett Co. - Toronto, Domtar - Toronto, Paterson & Barrett - Toronto, Paterson - Toronto, Cyanamid - Niagara Falls and Donald Wood Products - Donald. For these sites, it is recommended that the property owner and municipality be notified that tar wastes exist in the ground and that future excavation or development at these sites should be undertaken with this fact in mind.

At six of the sites with evidence of tar wastes there is potential for environmental impact. Site specific recommendations in addition to the above general recommendations, are appropriate for these sites to either more clearly define the chemical nature and physical extent of the wastes or to minimize potential impacts. These sites include Currie Products - Ottawa, Canada Creosoting - Sudbury, Canada Creosoting - Thunder Bay, Calder Creosoting - Sioux Lookout, Domtar - Cornwall and Standard Chemical - South River.

At the Currie Products - Ottawa site coal tar has contaminated the shallow soil and groundwater beside and below an apartment building and the area of a storm sewer that discharges to the Rideau River . Given the ongoing seepage of tar into the lower parking garage of the apartment building and the potential migration of tar along the sewer bedding material to the river, there is potential for environmental impact to the Rideau River. Studies are recommended to evaluate the potential tar migration to the Rideau River and possibly develop remedial plans for the site.

At the Canada Creosoting - Sudbury site, creosote may be contaminating groundwater and surface water that discharges to Junction Creek located south of the site. At this site, surface water and shallow groundwater are collected in a series of ditches and swales that drain across the site to Junction Creek. There is a potential for environmental impact to Junction Creek from creosote and resolution of this potential impact is recommended.

The Canada Creosoting site in Thunder Bay has creosote pitch at surface and is located adjacent to the Kaministikwia River. There is a high potential for environmental impact to the Kaministikwia River through migration of aqueous creosote contaminants and/or separate phase liquid creosote, if present in the subsoils, to the river. Some accumulation of creosote contaminants may also occur in the

Kaministikwia River sediments. Given this high potential for impact, studies are recommended to determine if there is an actual measurable impact on the river.

The Calder Creosoting site at Sioux Lookout has creosote tar visible at surface in several locations and local odours of creosote are reported at the site. Several residences are located within 200-300 m of the former plant site and one residence 800 m away likely obtains water from a well. Given this potential impact and surface water drainage, sampling of the one residential water well and adjacent surface water for creosote contaminants is recommended.

The Domtar - Cornwall site has exposed waste piles consisting of coal tar pitch. At this site, the potential impact is from direct contact with these waste piles. Impacts on the groundwater and surface water are considered minor. For this site, restricting contact with the wastes is recommended, either through covering the waste piles or in the interim, restricting site access.

The Standard Chemical site at South River has reported tar deposits on the land and possibly in the sediments of adjacent Forest Lake. Sediment sampling of Forest Lake for PAH is recommended to determine if tar wastes are present because the lake has recreational use. The most significant potential environmental and human health impact at this site relates to possible contamination of the South River drinking water supply wells located within 300 m of the site. Sampling of these shallow wells for phenols and PAH is recommended.

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# INVENTORY OF INDUSTRIAL SITES PRODUCING OR USING COAL TAR AND RELATED TARS IN ONTARIO

## VOLUME II

NOVEMBER 1988

Environment
Ontario

Jim Bradley
Minister

INTERA

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# Inventory of Industrial Sites Producing or Using Coal Tar and Related Tars in Ontario

## Volume II

Prepared for

Ontario Ministry of the Environment
Waste Management Branch
Toronto, Ontario

Prepared by

Intera Technologies Ltd.
Ottawa, Ontario

In Association with
M. Carter and J. Weiler

FINAL REPORT

H88-013

July, 1988

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# COAL TAR DISTILLATION PLANTS

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Hamilton Street Address East side Caroline St. between Mulberry and Sheaffe Sts.

MOE Region West Central

MOE District Hamilton NTS Map Sheet 30 M/5

Historical Maps and Photos Available 1927 fire insurance plan (Public Archives Canada, NMC Hamilton, sheet 118); 1933 fire insurance plan (Public Archives Canada NMC Hamilton, sheet 118); 1947 fire insurance plan (Public Archives Canada, NMC 9880, sheet 118); 1964 fire insurance plan (Public Archives Canada, Hamilton, sheet 118); 1969 air photo (NAPL A19504-40)

2. **Site Identification:**

Name Currie Products Ltd.

Type of Facility Coal tar distillation plant and roofing felt manufacturing

Operator(s) and Period(s) of Operation Hamilton Tar Products Co. Ltd. (1901 - 1910); Dominion Tar and Ammonia (1910 - 1914); Hamilton Tar and Distilling Co. (1914 - 1917); Hamilton Tar and Ammonia Co. (1919 - 1924); Hamilton Tar Products (1925 - 1929); Currie Products Ltd. (1929 - 1977)

3. **Site Characteristics:**

Size (when operated) 1.3 hectare

Present Land Use Public use; City of Hamilton Park

Planned Land Use Same as present

Present Occupant(s) City of Hamilton Park, baseball diamond, tennis courts, playground

Present Land Use Adjoining Properties North - industrial (warehouses); east - City works yard; south - residential/parkland; west - parkland

Underground Utilities Combined sewer, watermain and gas along old alignment of Caroline, Mulberry Sts. and Sheaffe (now centre of park)

Soil Conditions Unknown, 0.6 m of soil removed from site during plant demolition (1979)

Site Access Uncontrolled

4. **Evidence of Buried Wastes:**

Operating Period 1901 - 1977 (76 years)

Excavation History All soils in area of buildings and storage tanks/surface and underground) removed to depth of 0.6 m during City of Hamilton demolition of property in 1979/80

Visible Wastes None observed or reported

Odour Odours difficult to detect because of odours associated with operating steel works

Water Pollution None observec or reported

5. **Resource Characteristics:**

Surface Water Hamilton Harbour (Lake Ontario)

Proximity 600 m north

Use Industrial

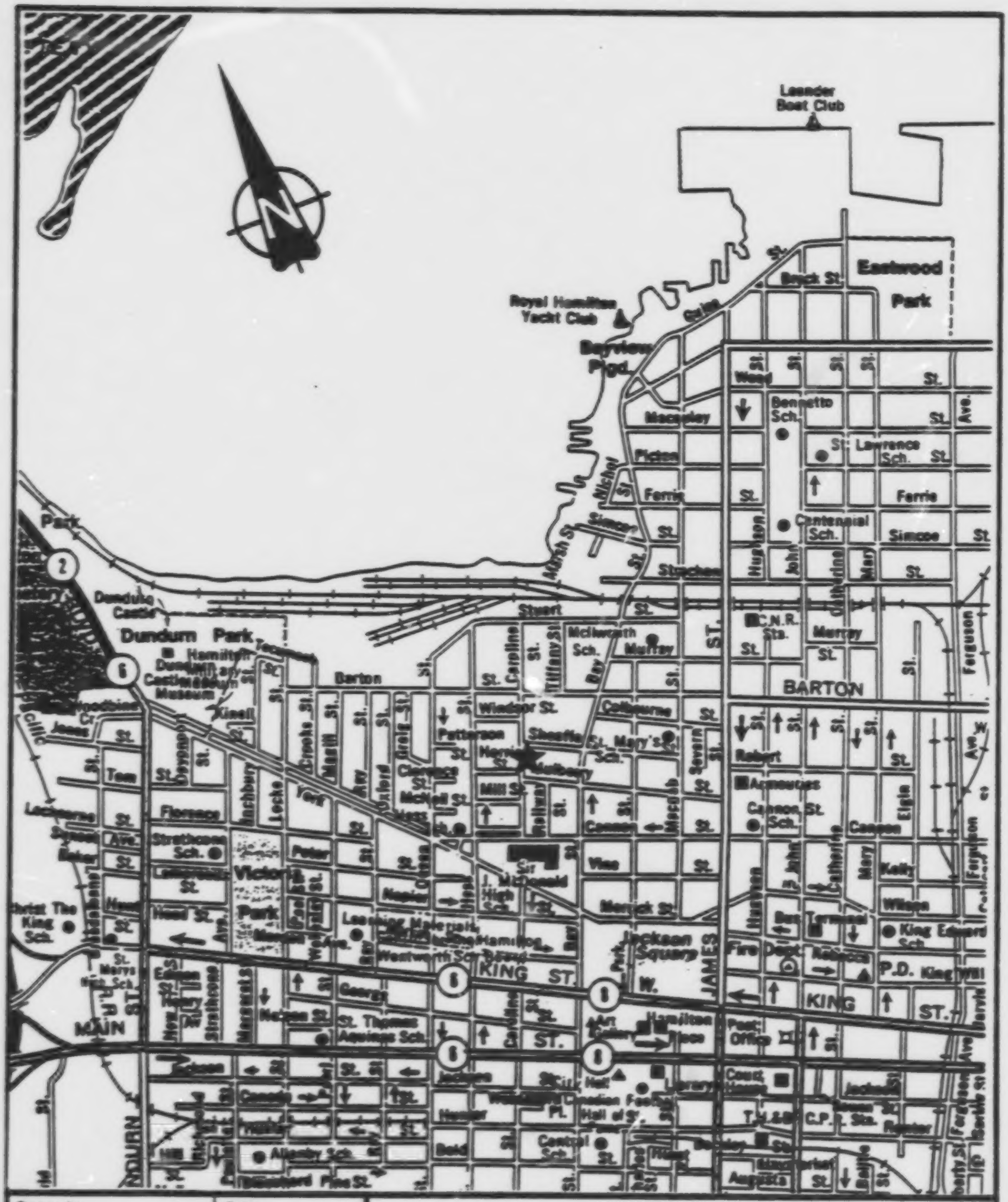
Groundwater, Proximity Unknown

Use None reported

Proximity of Existing Wells None reported

Site Investigations Unknown

6. **Comments/Remarks:** Currie Products Ltd. sold site as is to City; City of Hamilton demolished the site (contract no. CCH-79-1 (D)) in 1979/80. All tar tank contents were to have been disposed in compliance with MOE regulations. 150,000 gal of liquid and semi-liquid tar waste estimated to be removed from site as part of demolition.


Leander Boat Club
Royal Hamilton Yacht Club
Bayview Plgd.
Eastwood Park
Brock St.
Wood
Macaulay
Picton
Ferrie
Simcoe
Strachan
Stuart
Nichol
Burlington St.
Bennetto Sch.
St. Lawrence Sch.
Centennial Sch.
C.N.R. Sta.
Murray
BARTON
Barton
Dundurn Park
Dundurn Castle
Hamilton Military Museum
McIlwraith Sch.
Caroline
Tiffany St.
Bay
Windsor St.
Colbourne
Patterson
Sheaffe
Mulberry
Harriet St.
St. Mary's Sch.
Robert
Armouries
Cannon St. Sch.
Cannon
Vine
Merrick St.
Jackson Square
Sir J. McDonald High Sch.
Strathcona Sch.
Victoria Park
Florence
Peter
Napier
Locke
York
Dundurn
Woodbine Cr.
Jones
Tom
Christ The King Sch.
Leaming Materials
Westworth Sch. Board
KING ST.
JAMES ST.
Fire Dept.
Bus Terminal
Rebecca
P.D. King Wil
King Edward Sch.
KING
MAIN ST.
Post Office
Art Gallery
Hamilton Place
City Hall
Library
Court House
Canadian Football Hall of Fame
Central Sch.
St. Thomas Aquinas Sch.
George
Jackson
Canada
Hunter
Bold
Charlton
Herkimer
Allenby Sch.
Blanchard Pine St.
T.H.&B.
C.P.R. Sta.
Augusta
Hughson
John
Catharine
Mary
Ferguson
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Walnut
Wellington
Park
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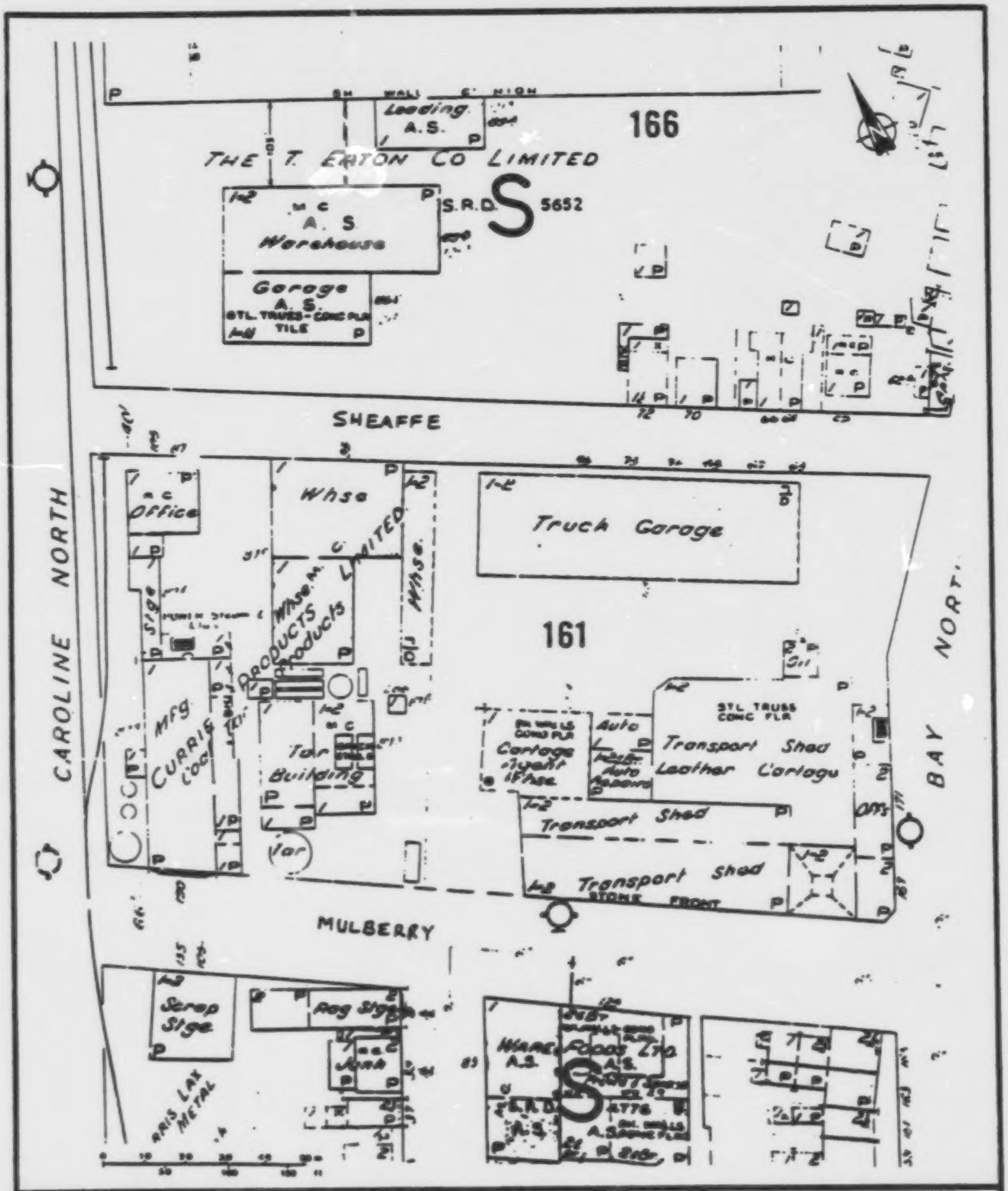
City of Hamilton, showing location of Currie Products site (Caroline St.).

INTERA Technologies


166
THE T. EATON CO LIMITED
Loading A.S.
A.S. Warehouse
S.R.D. S 5652
Garage A.S.
STL. TRUSS - CONC FLR TILE
CAROLINE NORTH
SHEAFFE
161
Office
Whse
CURRIE PRODUCTS LIMITED
Whse. Products
Whse.
Mfg. Currie Co.
Tar Building
Tar
Truck Garage
STL. TRUSS CONC FLR
Transport Shed
Leather Cartage
Auto
Cartage Agent Whse
Transport Shed
Transport Shed
STONE FRONT
BAY NORTH
MULBERRY
Scrap Stge
Rag Stge
Junk
Ware. A.S.
Foods Ltd.
A.S.
S.R.D.
A.S.
ARIS LAX METAL

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1964 Plan of Currie Products (Caroline St.) site, (Source: Fire insurance plan, Public Archives Canada, Hamilton, sheet 118)

INTERA Technologies

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Hamilton Street Address 350 Wentworth St. N. at Rosemary Avenue

MOE Region West Central

MOE District Hamilton NTS Map Sheet 30 M/5

Historical Maps and Photos Available No maps available (recent operation); 1984 air photo (NAPL A26888-51)

2. **Site Identification:**

Name Currie Products Ltd.

Type of Facility Coal tar distillation plant

Operator(s) and Period(s) of Operation Currie Products Ltd. (1977 to present)

3. **Site Characteristics:**

Size (when operated) 1 - 2 hectare

Present Land Use Industrial, active coal tar processing plant

Planned Land Use Same as present

Present Occupant(s) Currie Products Ltd., Marshall Currie Refractories

Present Land Use Adjoining Properties North - industrial/commercial (Swift Motors); east - vacant field; south - vacant field; west - residential/commercial

Underground Utilities Sewers, gas, water and telephone along Rosemary Avenue

Soil Conditions Unknown

Site Access Controlled - fenced

4. **Evidence of Buried Wastes:**

Operating Period 1977 - present (11 years)

Excavation History Unknown

Visible Wastes Operating coal tar processing facility

Odour Operating coal tar processing facility

Water Pollution None observed or reported

5. **Resource Characteristics:**

Surface Water Hamilton Harbour

Proximity 800 m northeast of site

Use Industrial

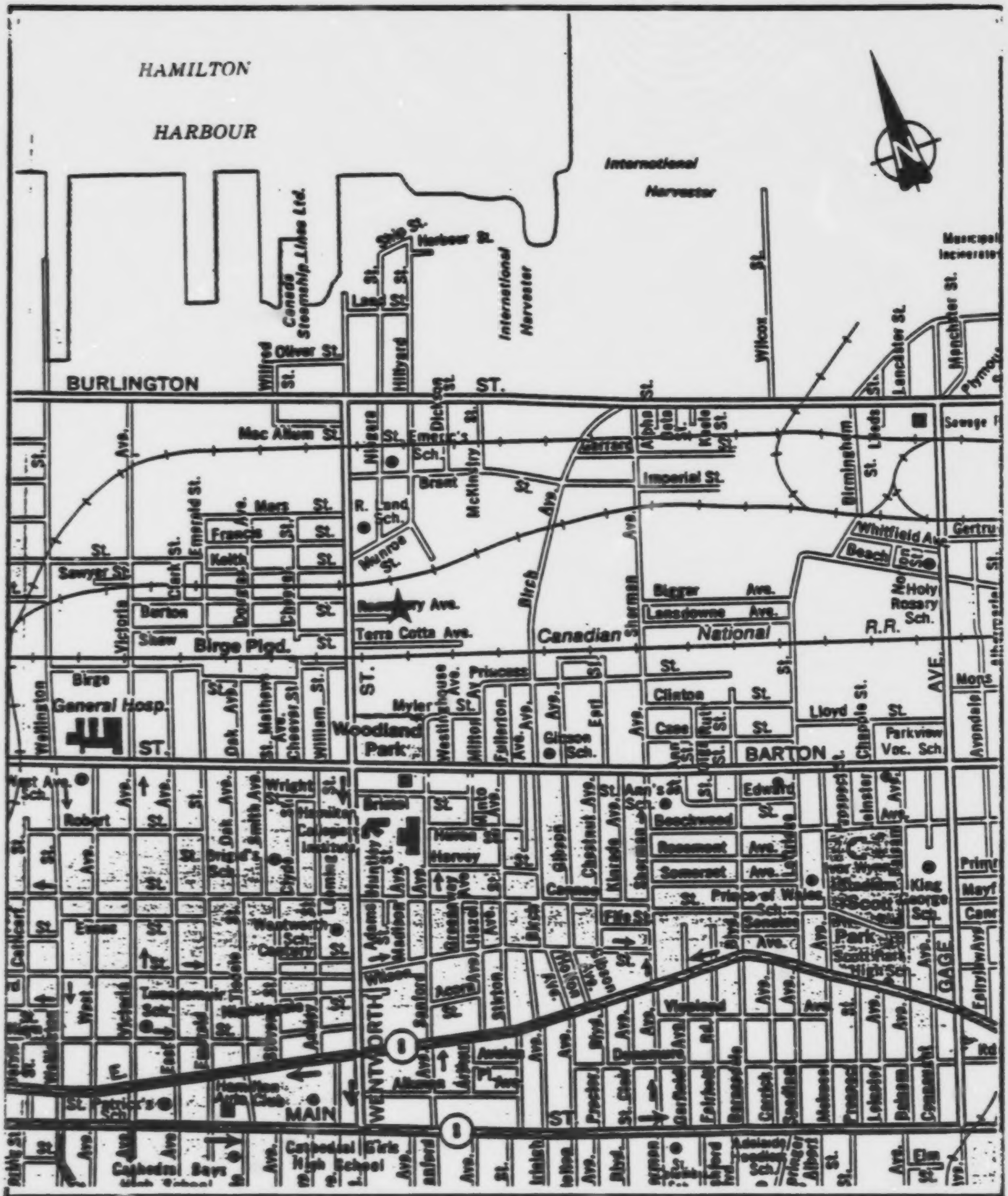
Groundwater, Proximity Unknown

Use None

Proximity of Existing Wells None reported

Site Investigations None known

6. **Comments/Remarks:** Active coal tar plant, back of property is reclaimed land from Coal Oil inlet of Hamilton Harbour


HAMILTON
HARBOUR
International
Harvester
Canada Steamship Lines Ltd.
Ship St.
Harbour St.
Land St.
Hillyard St.
International Harvester
Wilcox St.
Municipal Incinerator
Manchester St.
Lancaster St.
Oliver St.
Wilfred St.
BURLINGTON ST.
Dickson St.
Mac Allum St.
St. Emeric's Sch.
Imperial St.
Brant
McKinstry St.
Mars St.
Francis St.
Keith St.
Sawyer St.
Victoria Ave.
Clark St.
Emerald St.
Barton
Shaw
Birge Plgd.
R. Land Sch.
Munroe St.
Rosemary Ave.
Terra Cotta Ave.
Birch Ave.
Sherman Ave.
Canadian National R.R.
Bigger Ave.
Lansdowne Ave.
Whitfield Ave.
Beach
Holy Rosary Sch.
Birmingham St.
Leeds St.
Sewage P.
Birge
General Hosp.
Wellington St.
Princess
Myler St.
Woodland Park
Westinghouse Ave.
Milton Ave.
Fullerton Ave.
Gibson Sch.
Earl St.
Clinton St.
Case St.
Lloyd St.
Chapple St.
Parkview Voc. Sch.
Avondale St.
BARTON ST.
AVE.
West Ave. Sch.
Robert St.
Wright St.
Bristol St.
Hamilton Collegiate Institute
Huntley St.
St. Brigid's Sch.
St. Ann's Sch.
Beechwood
Edward St.
Rosemont Ave.
Somerset Ave.
Prince of Wales Sch.
King George Sch.
Scott Park
Scott Park High Sch.
Fife St.
Cannon St.
Wentworth Sch.
Cathcart St.
Essex St.
Wilson St.
Acorn
Avalon Pl.
Vineland Ave.
GAGE AVE.
Fairview Ave.
WENTWORTH ST.
Delaware Ave.
St. Patrick's Sch.
Hamilton Aero Club
MAIN ST.
8
Cathedral Girls High School
Cathedral Boys High School
Elm St.
Primrose
Mayfair

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City of Hamilton, showing location of Currie Products site (350 Wentworth St.).

**INTERA Technologies**

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Hamilton

Street Address 725 Strathearne Avenue North

MOE Region West Central

MOE District Hamilton

NTS Map Sheet 30 M/5

Historical Maps and Photos Available 1964 fire insurance plan (Public Archives Canada, NMC sheet 328); 1965 air photo (NAPL A18751-13)

2. **Site Identification:**

Name Domtar Cassidy Works

Type of Facility Coal tar distillation plant

Operator(s) and Period(s) of Operation Dominion Tar and Chemical Co. Ltd./ Domtar Ltd./Carbochem (1958 - present)

3. **Site Characteristics:**

Size (when operated) 3.5 hectare

Present Land Use Operating coal tar distillation plant

Planned Land Use Same as present

Present Occupant(s) Carbochem, a Domtar Rutgers Co.

Present Land Use Adjoining Properties North, south, east and west - heavy industrial

Underground Utilities Sanitary hook up to site from Strathearne. Storm drain traverses site, drainage to northeast to Harbour

Soil Conditions Sand and clay

Site Access Controlled, fenced

4. **Evidence of Buried Wastes:**

Operating Period 1964 - present (24 years)

Excavation History Unknown

Visible Wastes Active coal tar distillation site

Odour Active coal tar distillation site - slight odour of coal tar south of site

Water Pollution None observed

5. **Resource Characteristics:**

Surface Water Hamilton Harbour - also ditch drains to and under site from southwest

Proximity 100 m to dock inlet

Use Industrial

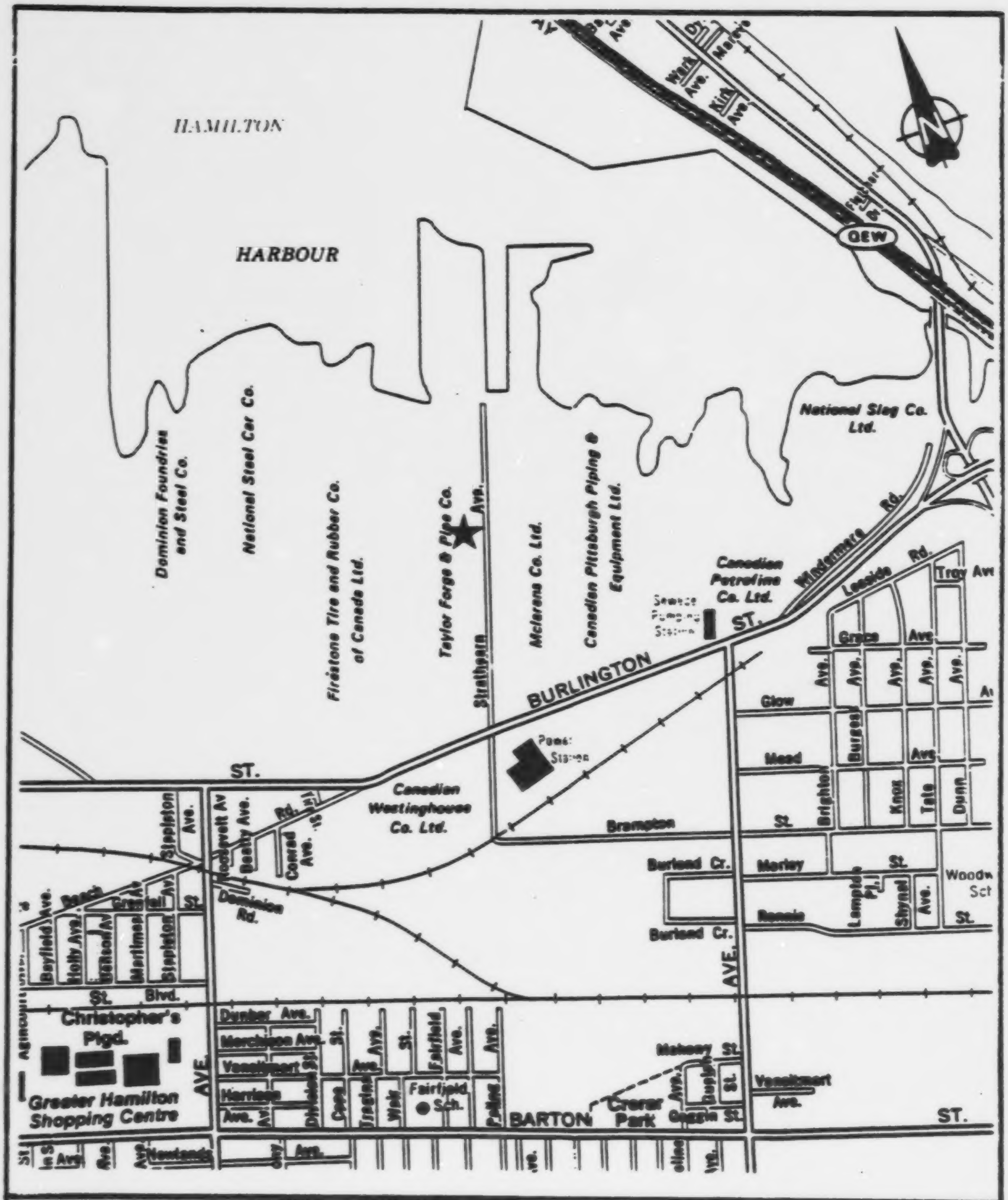
Groundwater, Proximity Unknown

Use None

Proximity of Existing Wells None known

Site Investigations Ongoing hydrogeological study of site (Gartner Lee and Associates)

6. **Comments/Remarks:** Active coal tar distillation plant currently under hydrogeologic study


HAMILTON
HARBOUR
QEW
National Slag Co. Ltd.
Dominion Foundries and Steel Co.
National Steel Car Co.
Firestone Tire and Rubber Co. of Canada Ltd.
Taylor Forge & Pipe Co.
Strathearne Ave.
Mclarens Co. Ltd.
Canadian Pittsburgh Piping & Equipment Ltd.
Canadian Petrofina Co. Ltd.
Sewage Pumping Station
BURLINGTON ST.
Windermere Rd.
Leaside Rd.
Troy Ave
Grace Ave.
Glow
Mead
Burgess Ave.
Brighton
Knox
Tate
Dunn
Power Station
Canadian Westinghouse Co. Ltd.
Brampton St.
Burlead Cr.
Morley St.
Rennie St.
Lampton Pl.
Stynel Ave.
Woodw Sch
Stapleton Ave.
Roosevelt Av
Beatty Ave.
Conrad Ave.
Dominion Rd.
Beach
Grenfell
Bayfield Ave.
Holly Ave.
Benson Av
Martimas Av
St. Blvd.
Christopher's Plgd.
Greater Hamilton Shopping Centre
Dunbar Ave.
Murchison Ave.
Vansitmart
Harrison
Fairfield Ave.
Fairfield Sch.
Crerar Park
Mahoney St.
Gage Ave.
BARTON ST.
AVE.
Vansitmart Ave.
Newlands

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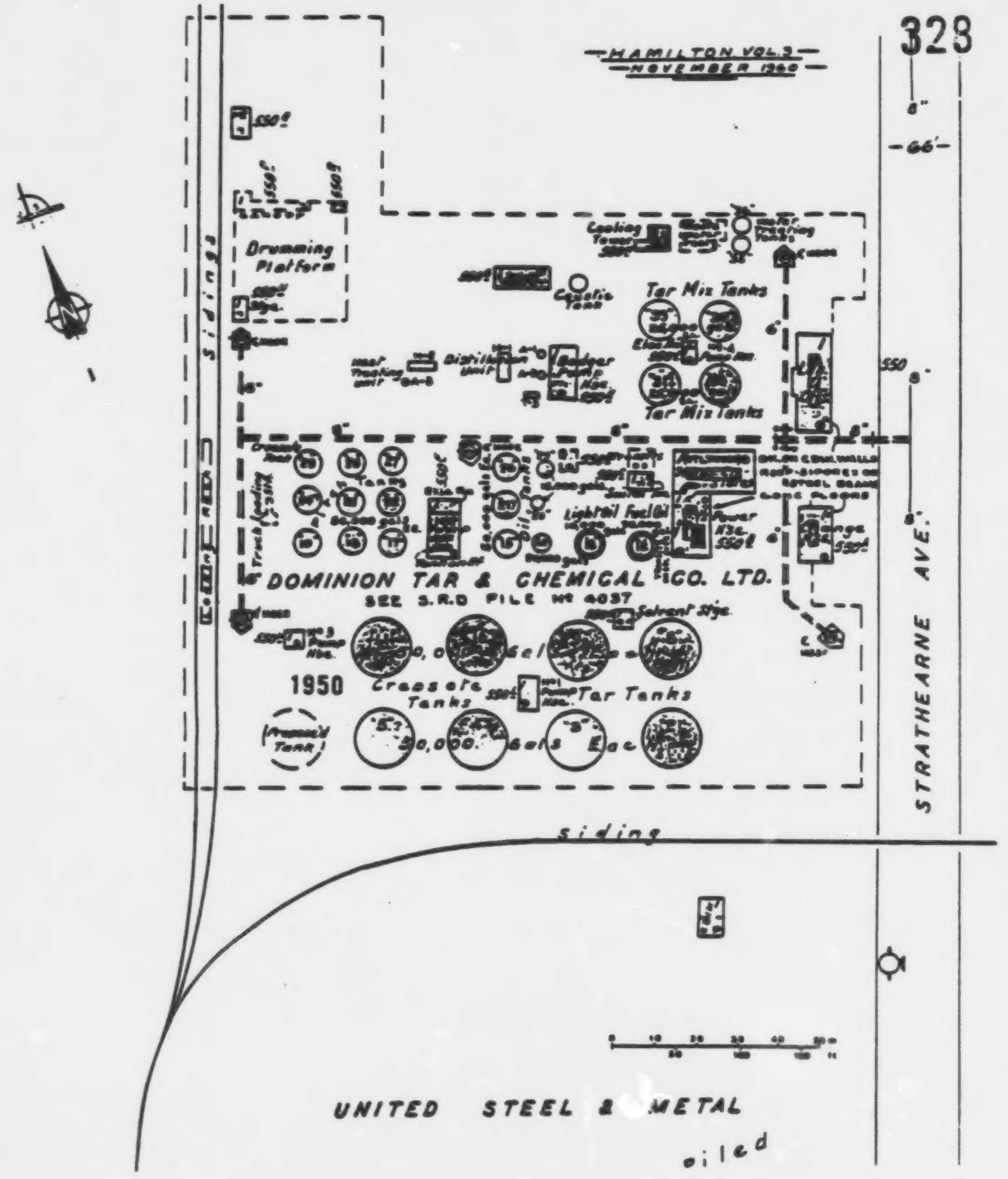
City of Hamilton, showing location of Domtar site.

**INTERA Technologies**


328
HAMILTON VOL.3
NOVEMBER 1960
66'
STRATHEARNE AVE.
Drumming Platform
sidings
Cooling Tower
Water Treating Tanks
Caustic Tank
Tar Mix Tanks
Heat Treating Unit
Distillation Unit
Tanks
Light Oil
Fuel Oil
Power Hse.
Garage
DOMINION TAR & CHEMICAL CO. LTD.
SEE S.R.D FILE No 4037
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1950
Creosote Tanks
Tar Tanks
30,000 Gals Each
Proposed Tank
siding
UNITED STEEL & METAL
oiled

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1964 Plan of Domtar site, (Source: 1964 revision of 1960 fire insurance plan, Public Archives Canada, NMC, sheet 328)

INTERA Technologies

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Uttawa

Street Address 170 Lees Avenue

MOE Region Southeastern

MOE District Ottawa

NTS Map Sheet 31 G/5

Historical Maps and Photos Available 1922 surveyed map (City of Ottawa map LS45); 1956 fire insurance plan (Public Archives Canada NMC, sheet 234-4); 1928 air photo (NAPL A18-10); 1961 oblique air photo (City of Ottawa Archives, CA-8494)

2. **Site Identification:**

Name Currie Products Ltd.

Type of Facility Coal tar distillation plant

Operator(s) and Period(s) of Operation Hamilton Tar Products, Currie Products Ltd. 1922 - 1949 (tar storage site until early 1960s)

3. **Site Characteristics:**

Size (when operated) 1.7 hectare

Present Land Use Apartment building (residential)

Planned Land Use Same as present

Present Occupant(s) Controlex Realty Ltd. (property managers)

Present Land Use Adjoining Properties North, east - residential; west - institutional (Armories); south - Rideau River

Underground Utilities Storm sewer at west boundary other utilities along Lees Avenue; underground parking for apartment building

Soil Conditions Sand fill overlying silty clay

Site Access Uncontrolled

4. **Evidence of Buried Wastes:**

Operating Period 1922 - 1949 (27 years) (storage site until early 1960s)

Excavation History Apartment building built in 1973 - 3 level; underground parking garage

Visible Wastes Tar seeping into underground parking garage

Odour Odour of tar in parking garage

Water Pollution Shallow groundwater contaminated by coal tar

5. **Resource Characteristics:**

Surface Water Rideau River

Proximity Adjacent (southern boundary)

Use Recreational

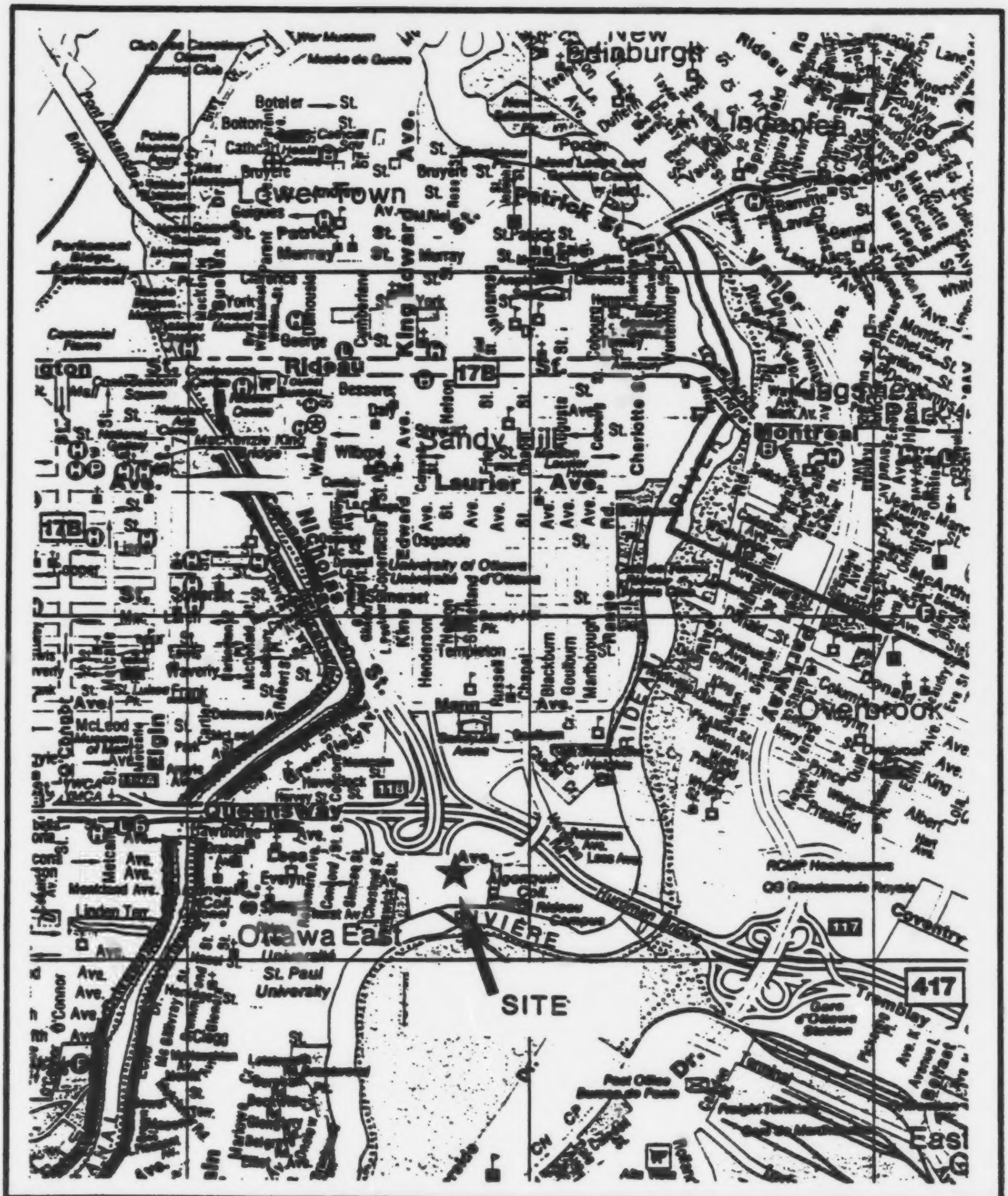
Groundwater, Proximity Shallow groundwater within 3 m of surface

Use Not used

Proximity of Existing Wells None in impacted area

Site Investigations Hydrogeologic study for MOE by Intera Technologies Ltd. (1987). Soils studies for apartment construction by Golder Associates (1968, 1972).

6. **Comments/Remarks:** Site has residual tar and oils in subsurface. Tar seeping into parking garage is most significant impact.


New Edinburgh
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Lower Town
Vanier
Sandy Hill
Rideau
Laurier Ave.
University of Ottawa
Université d'Ottawa
Overbrook
Queensway
Ottawa East
St. Paul University
Rivière Rideau
SITE
17B
417
RCMP Headquarters
Coventry
Tremblay

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City of Ottawa, showing location of Hamilton Tar Products/Currie Products site.

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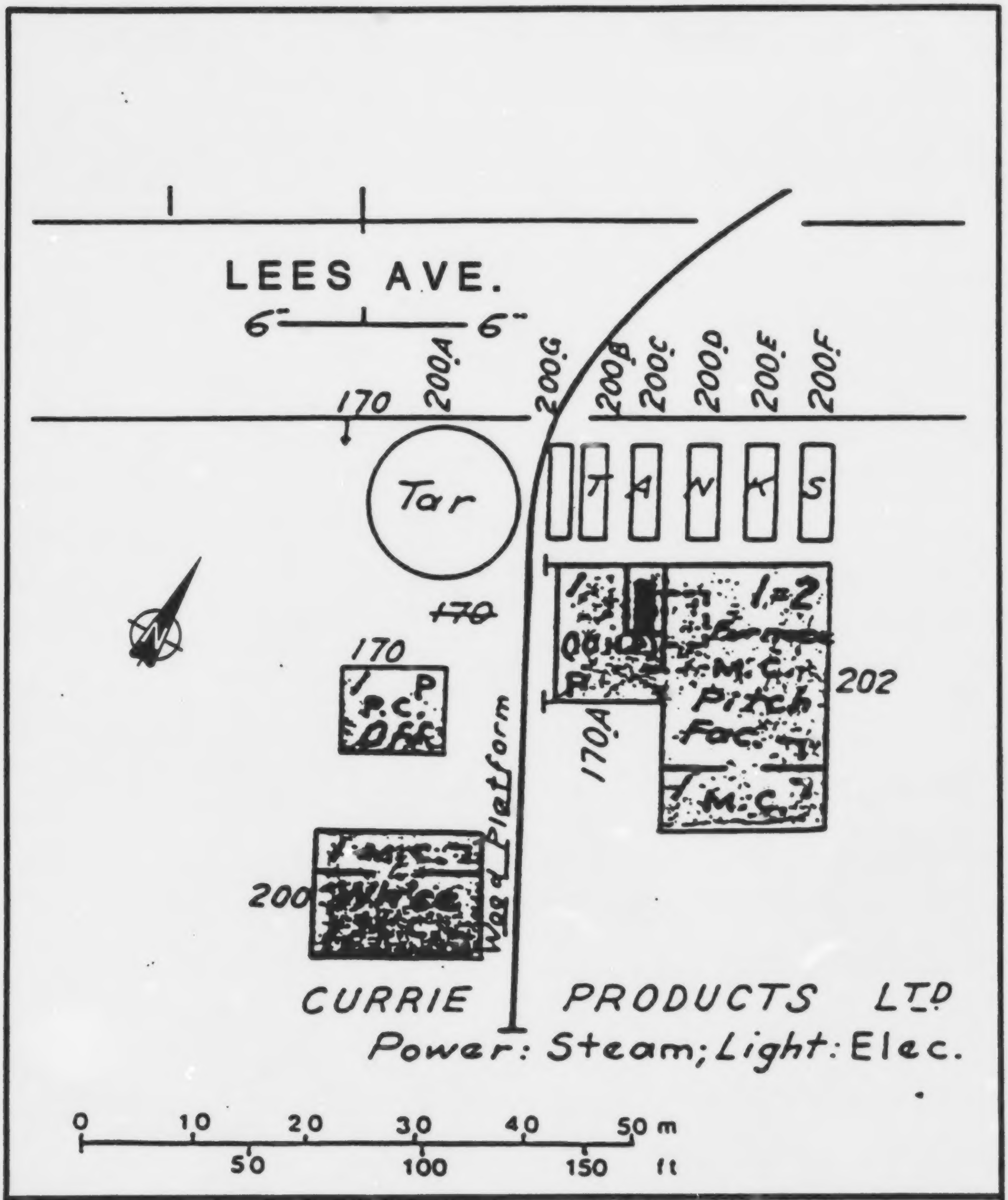
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1-2
M.C.
Pitch
Fac.
202
170A
M.C.
Wood Platform
M.C.
200
Office
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INTERA Technologies

1956 Plan of Currie Products site, (Source: Fire insurance plan, Public Archives Canada, NMC-234-4)

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Sault Ste. Marie Street Address 55 Baseline Rd.

MOE Region Northeastern

MOE District Sault Ste. Marie NTS Map Sheet 41 K/9

Historical Maps and Photos Available 1919 town plan; 1925 fire insurance plan (sheet 29); 1949 revisions of 1943 city plan (all from Sault Ste. Marie Public Library); 1939 air photo (NAPL A-5634-67)

2. **Site Identification:**

Name Dominion Tar and Chemical Co. Ltd.

Type of Facility Coal tar distillation plant

Operator(s) and Period(s) of Operation Dominion Tar and Chemical Co. Ltd./ Domtar Chemicals (approx. 1911 to present)

3. **Site Characteristics:**

Size (when operated) Approx. 9 hectare

Present Land Use Industrial, Domtar Chemicals (active site)

Planned Land Use Industry to cease operations at site, July 1, 1988

Present Occupant(s) Domtar Chemicals Group, Domtar Inc.

Present Land Use Adjoining Properties North - industrial and residential; east - industrial; south - industrial; west - industrial

Underground Utilities Pipelines between Algoma and Domtar

Soil Conditions Sand overlying clay overlying silt overlying silty sand till overlying bedrock

Site Access Controlled, limited access

4. **Evidence of Buried Wastes:**

Operating Period 77 years (approx. 1911 to present) in association with Algoma Steel by-product coke ovens

Excavation History Unknown

Visible Wastes Coal tar found in Spring and Bennett Creeks

Odour Coal tar odour around site but also attributable to Algoma property

Water Pollution Coal tar found in Spring and Bennett Creeks and in underlying soils

5. **Resource Characteristics:**

Surface Water St. Mary's River, Spring Creek, Bennett Creek

Proximity Algoma Slip, Spring Creek & Bennett Creek adjacent to site

Use Recreational/industrial

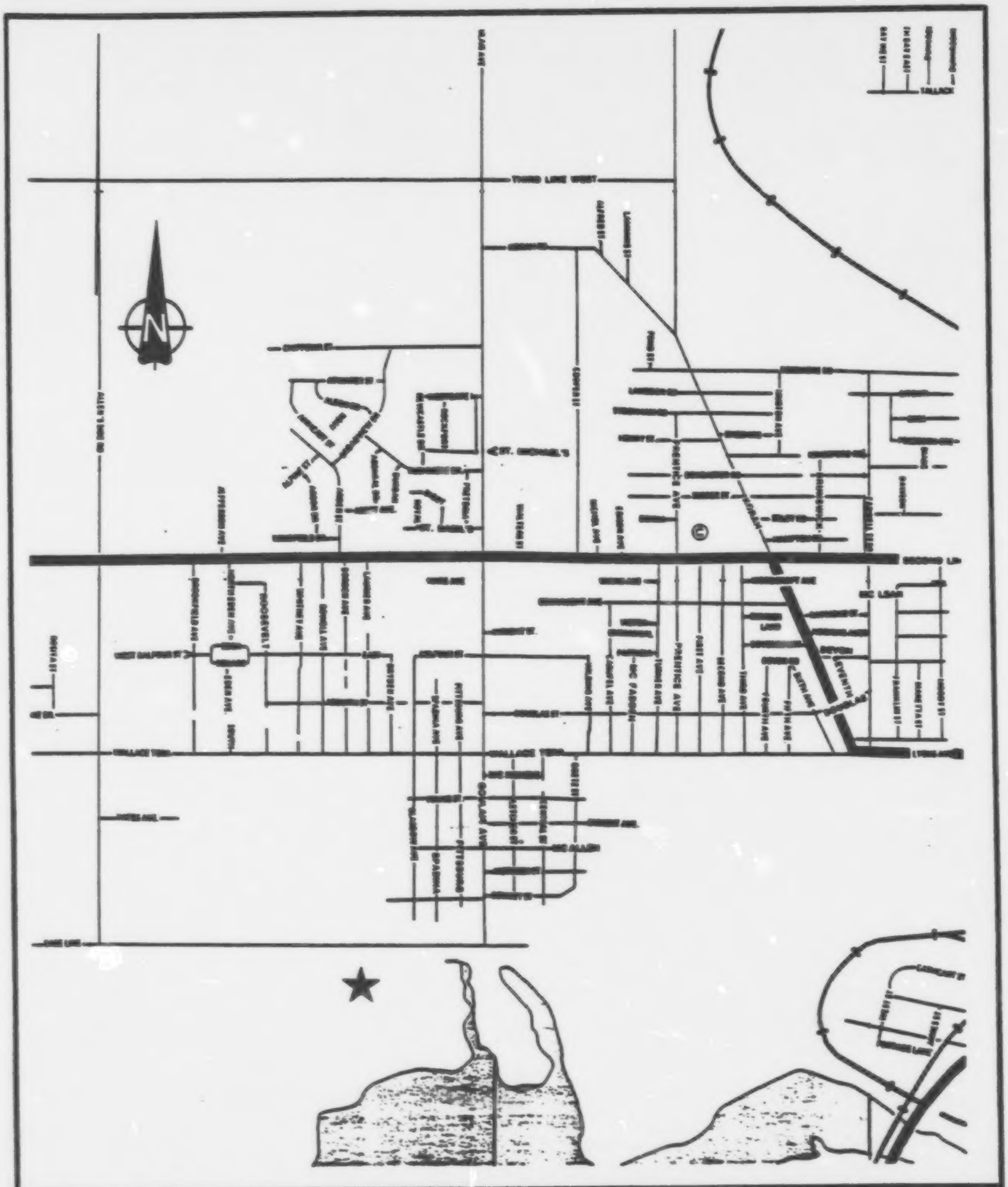
Groundwater, Proximity In bedrock approx. 30 - 100 m below surface

Use Municipal and industrial water supply

Proximity of Existing Wells Domtar well on-site, Cooper Well adjacent; Municipal wells 1 - 2 km

Site Investigations Ongoing site investigation by Gartner-Lee Assoc. of coal tar contamination

6. **Comments/Remarks:** Coal tar found in creeks and soils around the site. Site investigations ongoing by owners and MOE. Domtar and Cooper well water quality tested by MOE. Off-site disposal areas unknown - probably on-site or to Algoma Slag Dump.


N
THIRD LINE WEST
ST. MICHAEL'S
SECOND LN
WALLACE TERR.
PRENTICE AVE
FIRST AVE
WEST BALFOUR ST
TALLACK

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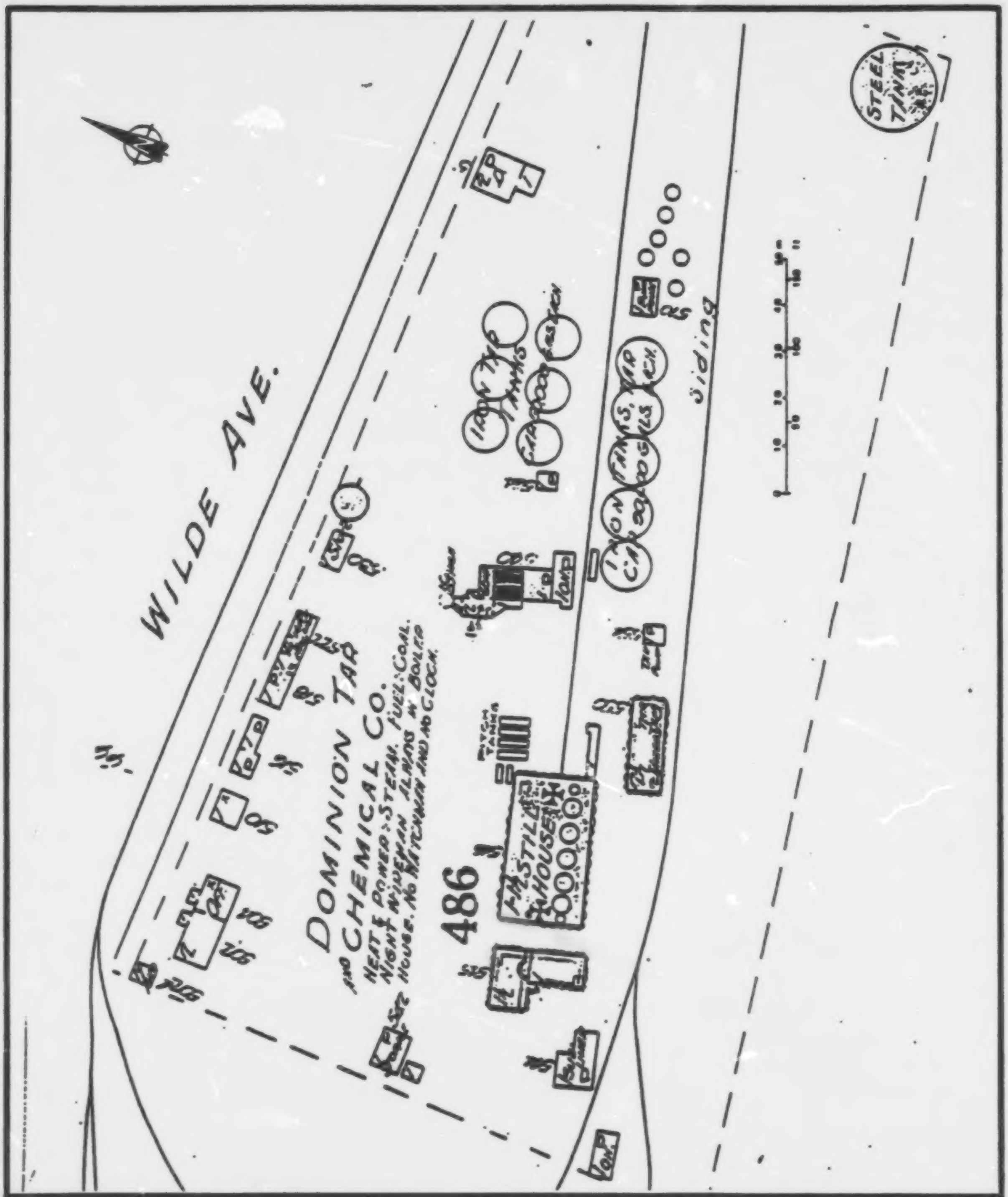
City of Sault Ste. Marie, showing location of Domtar Chemicals site.

INTERA Technologies


WILDE AVE.
DOMINION TAR AND CHEMICAL CO.
HEAT & POWER: STEAM. FUEL: COAL.
NIGHT WATCHMAN ALWAYS IN BOILER HOUSE. NO WATCHMAN AND NO CLOCK.
486
F.M. STILL HOUSE
IRON TANKS
IRON TANKS
siding
STEEL TANK

| | | |
|---|---|---|
| Drawn by | Date | 1925 Plan of Domtar site, (Source: Fire insurance plan, Sault Ste. Marie Public Library, sheet 29) |
| Checked by | Date | |
| Revisions | Date | |
| | | |

INTERA Technologies

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Thunder Bay

Street Address North end of Maureen St. on Lake Superior

MOE Region Northwestern

MOE District Thunder Bay

NTS Map Sheet 52 A/6

Historical Maps Available 1971 Military City Map (Public Archives Canada, NMC 78725); 1940 oblique air photo (Thunder Bay Library); 1950 air photo (NAPL A12667-93)

2. **Site Identification:**

Name Northern Wood Preservers Inc.

Type of Facility Coal tar distillation plant (1946 - late 1970s) and creosoting plant (1940 - present)

Operator(s) and Period(s) of Operation Northern Tar and Chemical Co. Ltd., Northern Wood Preservers Ltd., Northern Forest Products Ltd. (1940 - 1974) Abitibi Price (Northern Wood Preservers Ltd, (1974 - 1982), Northern Wood Preservatives Inc. (1982 - present)

3. **Site Characteristics:**

Size (when operated) About 20 hectare

Present Land Use Heavy industrial

Planned Land Use As is

Present Occupant(s) Northern Wood Preservers Inc.

Present Land Use Adjoining Properties North - Saskatchewan Wheatpool Elevators; east - Lake Superior; south - Harris Rebar Inc., Thunder Bay Marine Services; west - CN railyards

Underground Utilities Sanitary sewer and water lines

Soil Conditions 0 - 4 m landfill sands overlying silty grey clay

Site Access Controlled

4. **Evidence of Buried Wastes:**

Operating Period 1940 - present (48 years)

Excavation History Unknown

Visible Wastes In harbour sediment samples (1973, 1984, 1986); MOE divers large area of visible sediment contamination 1 m thick; significant creosote contamination in landfill sands identified from borehole investigation (1977)

Odour Creosote odour associated with currently operating plant

Water Pollution Oil slicks frequently reported in harbour in the vicinity of site, creosote contaminated sediments in harbour, 6500 $m^2$ area of heavy creosote contamination identified adjacent to creosote plant (1977)

5. **Resource Characteristics:**

Surface Water Lake Superior - Thunder Bay harbour

Proximity Adjacent

Use Recreational/industrial

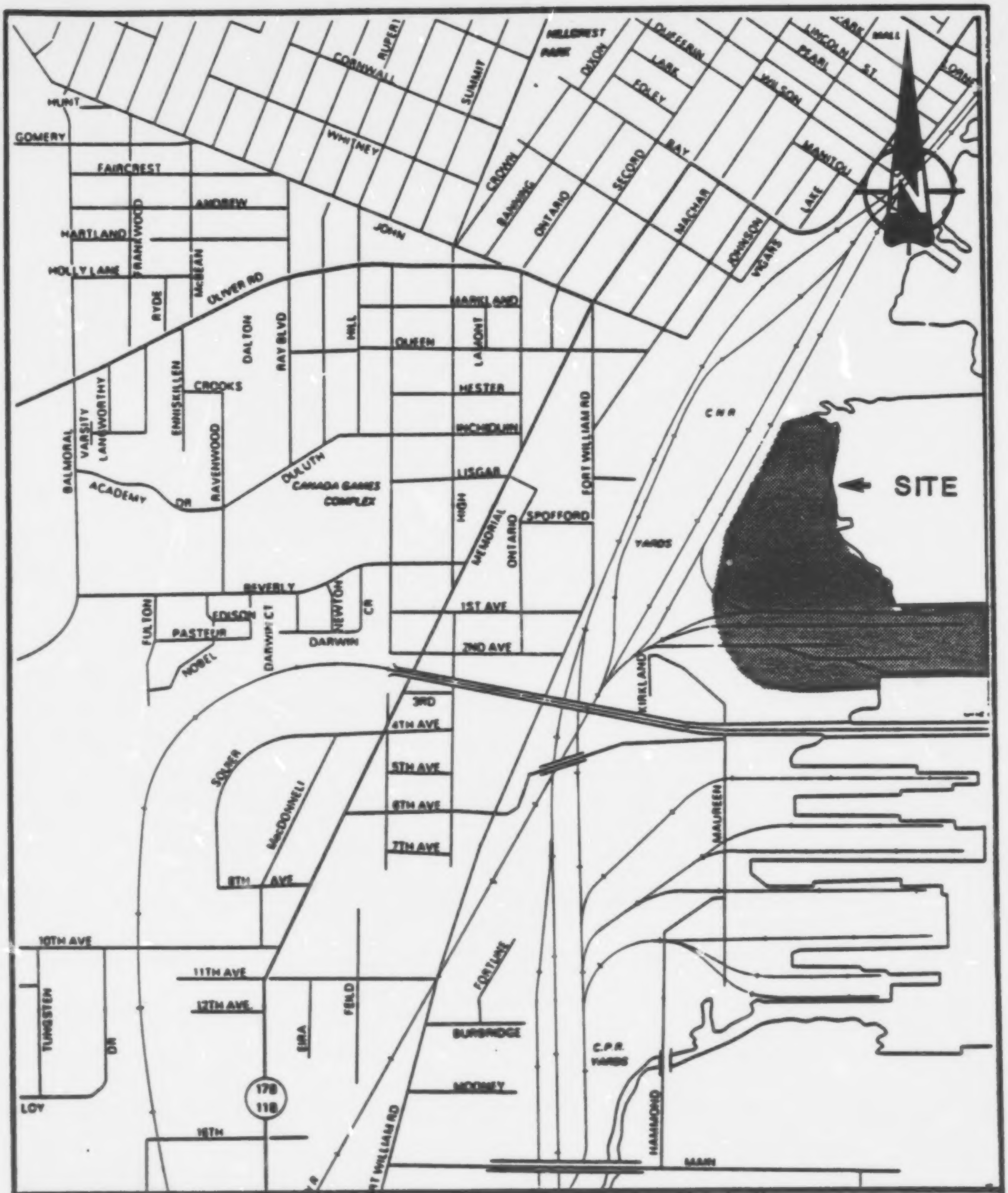
Groundwater, Proximity 1 m

Use None

Proximity of Existing Wells None reported

Site Investigations - Soil and Groundwater Investigation - Wardrop and Assoc. (1977); Soil and Sediment Survey, Berard and Tseng, Environment Canada (1986)

6. **Comments/Remarks:** - Announcement of site construction in May 18, 1939 issue of city paper, site currently under MOE control order


HILLCREST PARK
DUFFERIN
LINCOLN
PARK
MALL
LORNE
RUPERT
CORNWALL
SUMMIT
DIXON
LARK
PEARL
ST
WILSON
FOLEY
HUNT
GOMERY
WHITNEY
BAY
MANITOU
FAIRCREST
CROWN
SECORD
ANDREW
BANNING
ONTARIO
MACHAR
LAKE
HARTLAND
FRANKWOOD
JOHN
JOHNSON
VICARS
HOLLY LANE
McBEAN
OLIVER RD
RYDE
MARKLAND
DALTON
RAY BLVD
HILL
QUEEN
LAMONT
ENNISKILLEN
CROOKS
HESTER
VARSITY
LANGWORTHY
INCHIQUIN
CNR
BALMORAL
RAVENWOOD
DULUTH
CANADA GAMES COMPLEX
LISGAR
FORT WILLIAM RD
SITE
ACADEMY
DR
HIGH
MEMORIAL
ONTARIO
SPOFFORD
YARDS
BEVERLY
FULTON
EDISON
DARWIN CT
NEWTON
CR
1ST AVE
PASTEUR
DARWIN
2ND AVE
NOBEL
KIRKLAND
3RD
4TH AVE
SOLVER
McDONNELL
5TH AVE
6TH AVE
MAUREEN
7TH AVE
8TH AVE
10TH AVE
FORTUNE
11TH AVE
12TH AVE
TUNGSTEN
DR
EIRA
FIELD
BURBRIDGE
C.P.R. YARDS
MOONEY
LOY
17B
11B
16TH
HAMMOND
FT WILLIAM RD
MAIN

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| Revisions | Date |
| | |

City of Thunder Bay, showing location of Northern Wood Preservers site.

INTERA Technologies

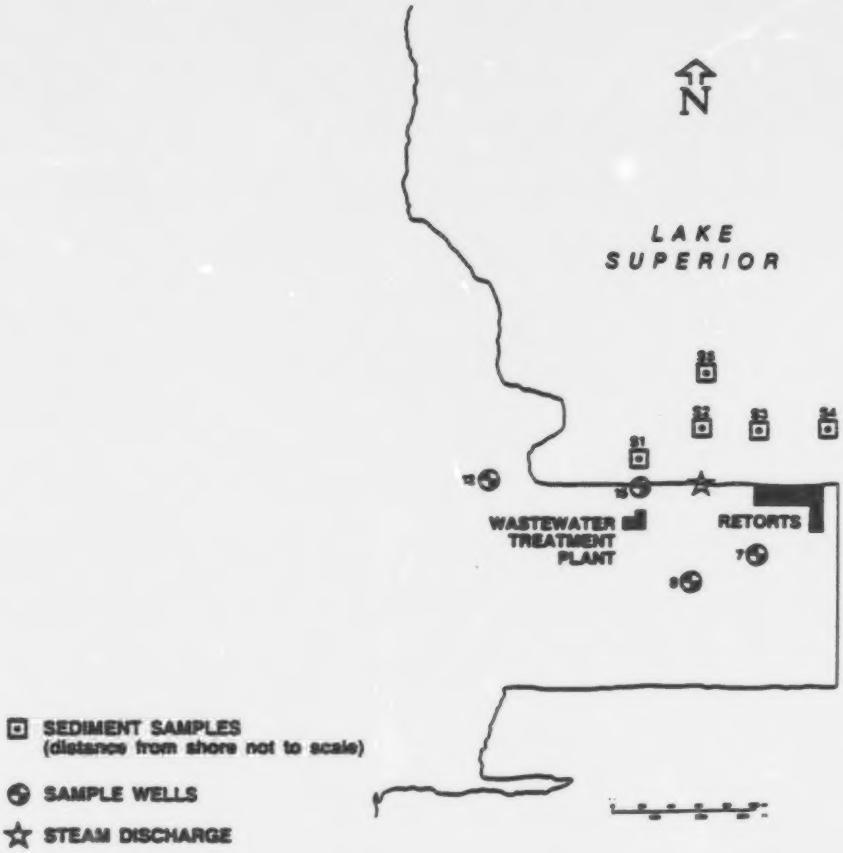

N
LAKE SUPERIOR
S1
7
8
WASTEWATER TREATMENT PLANT
RETORTS
SEDIMENT SAMPLES (distance from shore not to scale)
SAMPLE WELLS
STEAM DISCHARGE

FIGURE 3
NORTHERN WOOD PRESERVERS INC., THUNDER BAY
SAMPLING WELL AND SEDIMENT LOCATIONS

| | | |
|---|---|---|
| Drawn by | Date | 1984 Plan of Northern Wood Preservers site, (Source: Berard, M. and T. Tseng, Environment Canada Report, 1986) |
| Checked by | Date | |
| Revisions | Date | |
| | | |

INTERA Technologies

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Toronto Street Address 675 Lakeshore Blvd. E.

MOE Region Central

MOE District Toronto NTS Map Sheet 30 M/11

Historical Maps and Photos Available 1935 fire insurance plan (Public Archives Canada NMC 13999, sheet 257); 1951 fire insurance plan (Public Archives Canada NMC 9944, sheet 257); 1939 air photo (NAPL A6591-36)

2. **Site Identification:**

Name Barrett Co.

Type of Facility Coal tar distillation plant

Operator(s) and Period(s) of Operation The Barrett Co. (1921 - 1965)

3. **Site Characteristics:**

Size (when operated) 2.0 hectare

Present Land Use Commercial

Planned Land Use Same

Present Occupant(s) Greyhound Lines of Canada Ltd. (bus garage - north end); Chai Kosher Poultry Processors (south end)

Present Land Use Adjoining Properties North, east, west and south - industrial/ commercial

Underground Utilities Storm and sanitary sewer along Saulter St. and Lakeshore Blvd. E.

Soil Conditions Unknowm probably landfill overyling clay/silt

Site Access Greyhound property fenced with open entrance. Access unlimited

4. **Evidence of Buried Wastes:**

Operating Period 1921 - 1965 (44 years)

Excavation History Construction of bus garage and buried fuel tanks encountered creosote in soil (1981/82)

Visible Wastes Historically wastes present during construction but none noticeable now

Odour Odours noticeable in storm sewer, catch basins of Greyhound parking lot and historically reported during excavation

Water Pollution None observed or reported

5. **Resource Characteristics:**

Surface Water Lake Ontario/Turning Basin

Proximity Lake Ontario approx. 1 km; Turning Basin approx. 250 m

Use Industrial, recreational

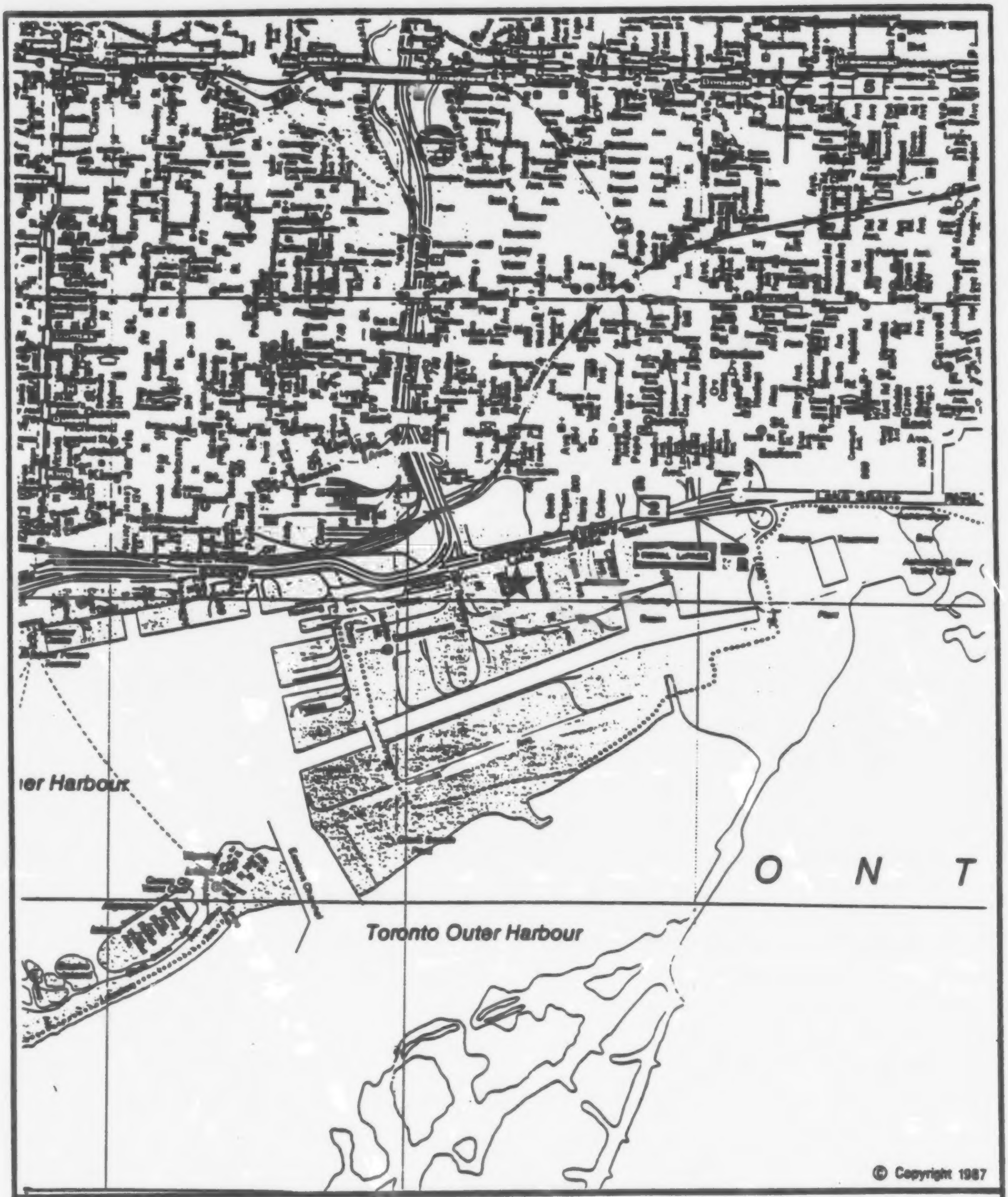
Groundwater, Proximity Unknown

Use Not used

Proximity of Existing Wells Unknown

Site Investigations None reported

6. **Comments/Remarks:** Creosote detected in excavations for Greyhound garage in 1981-82. Creosote seeping into excavation. Off-site odour complaints reported to MOE during construction. Contaminated soil refused at Leslie St. spit and hauled to Beare Rd. landfill; areas of creosote contamination left on-site and covered (1981, 82)


ter Harbour
Toronto Outer Harbour
O N T
© Copyright 1987

| | | |
|---|---|---|
| Drawn by | Date | City of Toronto, showing location of Barrett Co.site (675 Lakeshore Blvd). |
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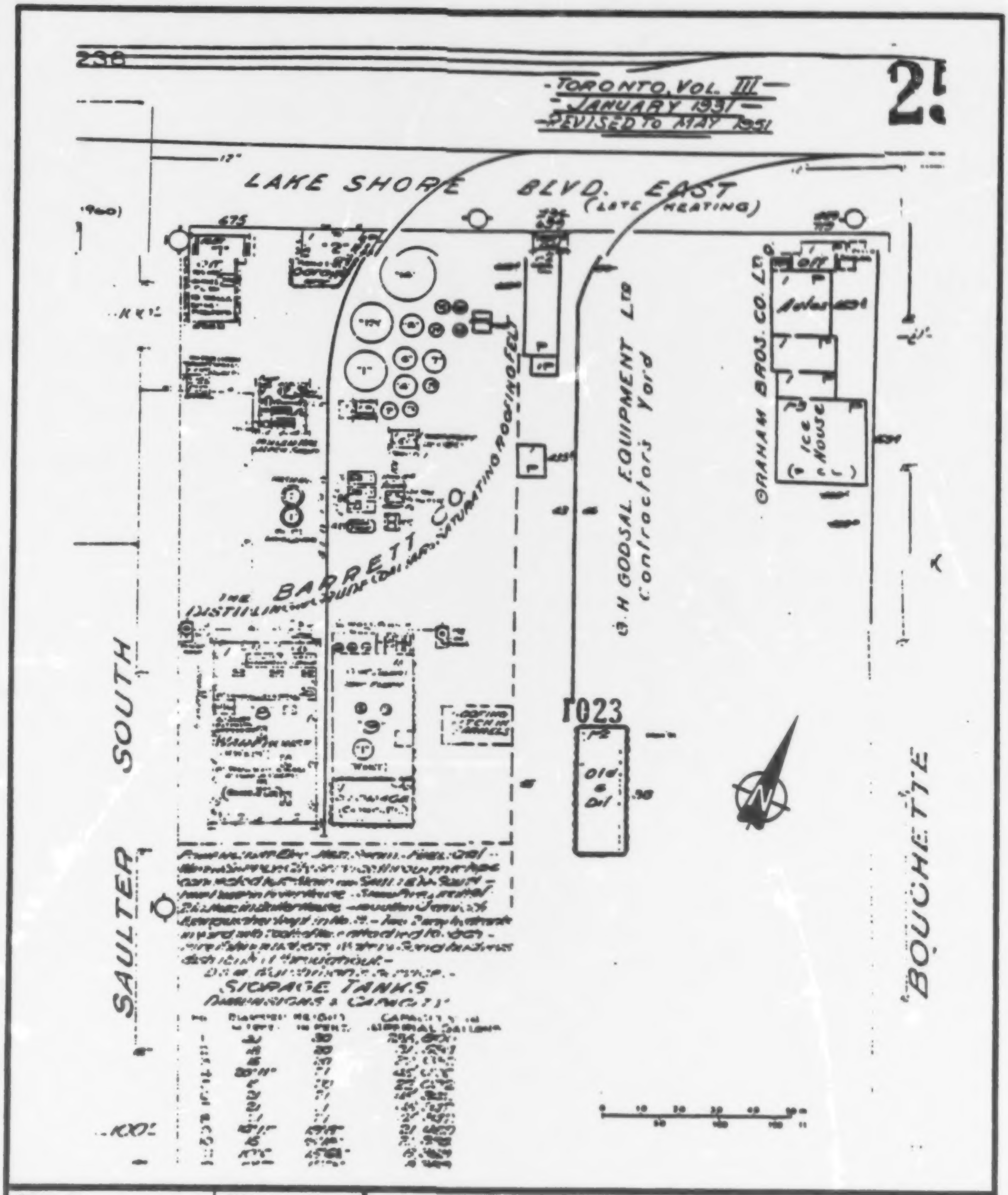
| Revisions | Date | |
| | | |

INTERA Technologies


238
TORONTO, VOL. III
JANUARY 1931
REVISED TO MAY 1951
LAKE SHORE BLVD. EAST
(LATE KEATING)
THE BARRETT CO.
DISTILLING
SATURATING ROOFING FELT
G.H. GODSAL EQUIPMENT LTD
Contractors Yard
GRAHAM BROS. CO. LTD
Ice House
1023
Old & Oil
SOUTH
SAULTER
BOUCHETTE
STORAGE TANKS
DIMENSIONS & CAPACITY

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1951 Plan of Barrett Co. site, (Source: Fire insurance plan, Public Archives Canada, NMC-9944, sheet 257)

INTERA Technologies

# Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Toronto

Street Address 801 Lakeshore Blvd. E.
Toronto, Ontario

MOE Region Central

MOE District Toronto

NTS Map Sheet 30 M/11

Historical Maps Available 1912 Goad atlas map (Public Archives Canada, NMC 9948, Sheet 30); 1935 fire insurance plan (Public Archives Canada, NMC 13999, Sheet 258); 1939 air photo (NAPL A6591-36)

2. **Site Identification:**

Name Dominion Tar and Chemical Co. Ltd./Domtar

Type of Facility Coal tar distillation plant

Operator(s) and Period(s) of Operation Dominion Tar and Chemical/Domtar (1925 - 1974)

3. **Site Characteristics:**

Size (when operated) 3.3 hectare

Present Land Use Commercial in north and central sections (Mayfair Lakeshore Racquet Club) and vacant undeveloped at south end near Commissioners St.

Planned Land Use Expansion of Racquet Club to south, possible energy from waste project on Belkin property

Present Occupant(s) Mayfair Lakeshore Racquet Club, Belkin Paper Ltd.

Present Land Use Adjoining Properties North - commercial; east - commercial; south - industrial; west - industrial/recreational

Underground Utilities Sewers along Logan, Commissioner and Carlaw Sts.

Soil Conditions Fill material at surface overlying sand and clay

Site Access Uncontrolled

4. **Evidence of Buried Wastes:**

Operating Period 49 years (1925 to 1974)

Excavation History Domtar buildings removed 1980, most tanks and contents removed 1984, construction of Racquet Club (1987-88)

Visible Wastes Remmants of tar soaked felt/paper, tar stained concrete, cistern containing tar and water evident at south end of property

Odour Odour of coal tar at several locations on-site, most noticeable at south end of block

Water Pollution Phenols present in groundwater at moderate to high concentrations; PAHs present in groundwater at most of the sampled locations

5. **Resource Characteristics:**

Surface Water Lake Ontario/Turning Basin

Proximity Lake Ontario - 750 m, Turning Basin - 200 m

Use Industrial, recreational

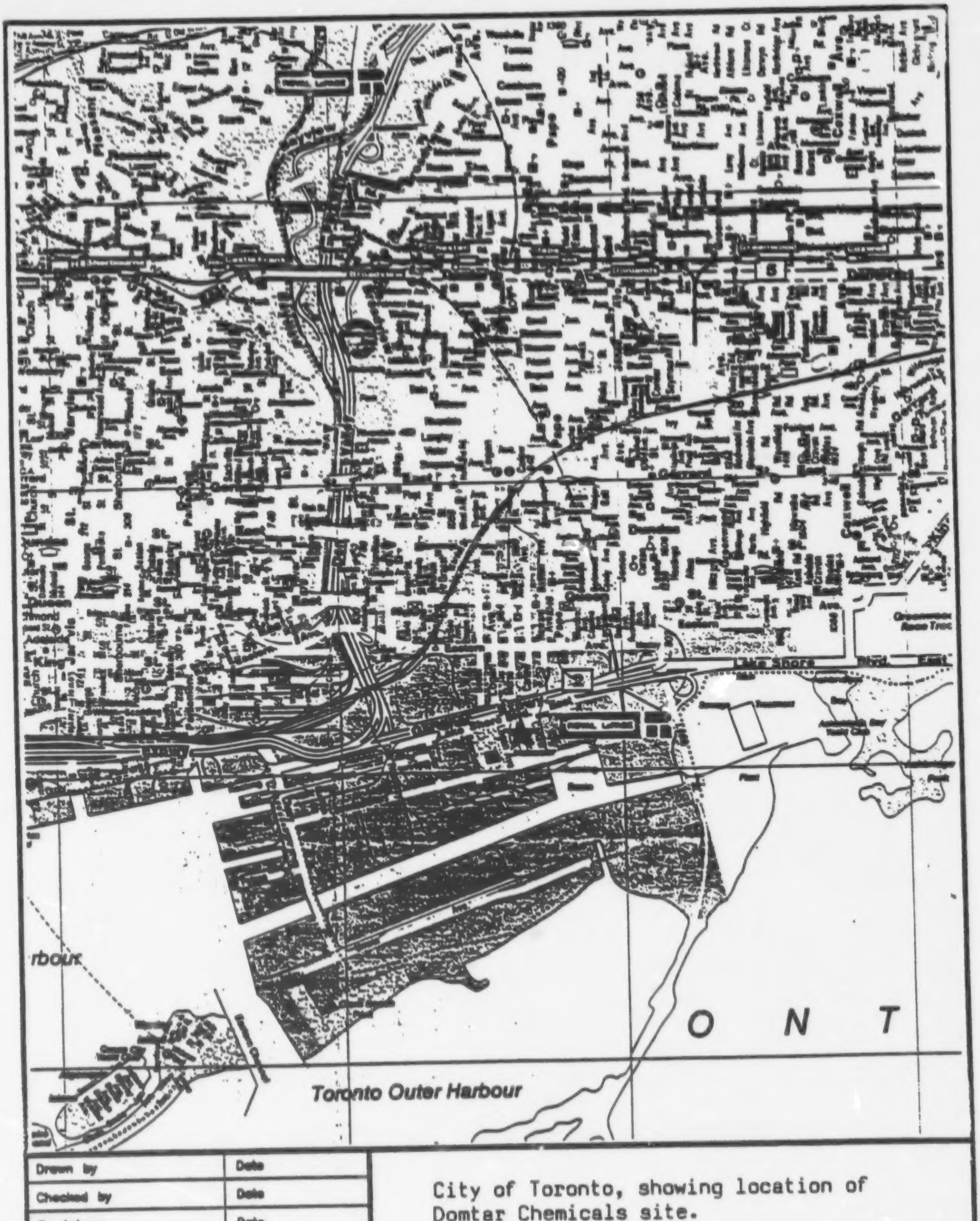
Groundwater, Proximity Unknown

Use Not used

Proximity of Existing Wells None known

Site Investigations Cutforth, White and Associates and MacLaren Plansearch Inc. (1985); Trow Ltd. (1978); MOE surface soil sampling (1984)

6. **Comments/Remarks:** Hydrogeologic study by Cutforth, White indicates soil and groundwater contamination on-site in 1985. Treatment plant for groundwater in place in 1988, some underground cisterns, tanks still in place with residual creosote/tar near south end of property. Tar likely transported by pipeline from adjacent Consumers Gas, Station "B" plant.


Lake Shore Blvd. East
Greenwood Race Trac
Queen
King
Gerrard
rbour
O N T
Toronto Outer Harbour

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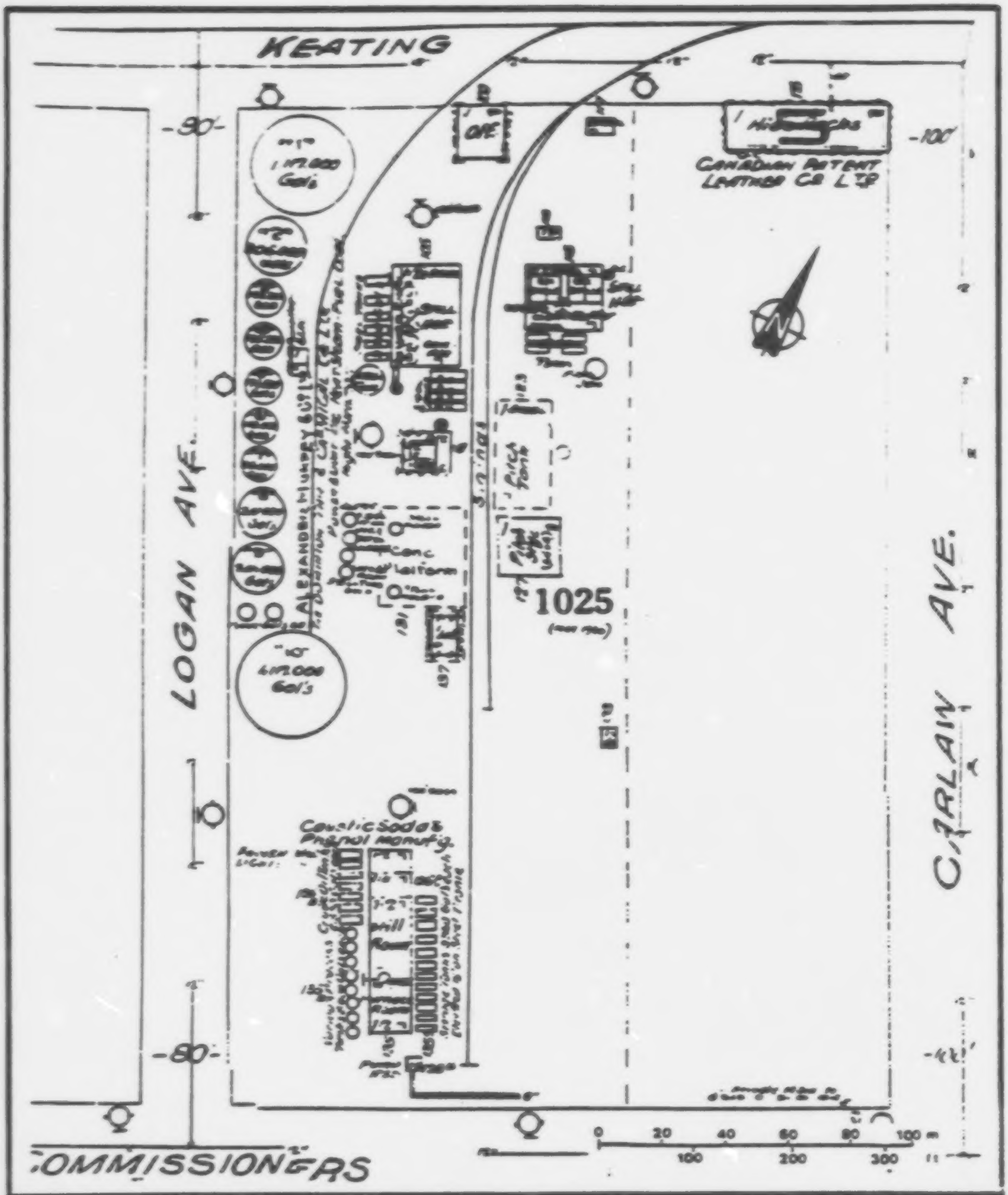
City of Toronto, showing location of Domtar Chemicals site.

INTERA Technologies


KEATING
-90'
-100'
ONE
CANADIAN PATENT LEATHER CO LTD
"1"
1,172,000 Gals
ALEXANDER MURRAY & CO LTD
DOMINION TAR & CHEMICAL CO LTD
LOGAN AVE.
Pitch Tank
Conc Platform
1025
"10"
4,172,000 Gals
Caustic Soda & Phenol Manuf'g.
Still Room
CARLAIN AVE.
-80'
COMMISSIONERS
0
20
40
60
80
100 m
100
200
300 ft

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Checked by | Date
Revisions | Date

1935 Plan of Domtar site, (Source: Fire insurance plan, Public Archives Canada, NMC-13999, sheet 258)

INTERA Technologies

# Fact Sheet for Survey of Industrial Sites

## 1. Site Location:

City Toronto

Street Address 6 Morse St., southern part of blocks bounded by Logan, Lakeshore, Morse and Carlaw

MOE Region Central

MOE District Toronto

NTS Map Sheet 30 M/11

Historical Maps and Photos Available 1912 Goad atlas map (Public Archives Canada NMC 9948, sheet 30); 1935 fire insurance plan (Public Archives Canada NMC 13999, sheet 249); 1951 fire insurance plan (Public Archives Canada NMC 9944, sheet 249); 1939 air photo (NAPL A6591-36)

## 2. Site Identification:

Name Imperial Varnish and Colour Co. Ltd.

Type of Facility Oil tar distillation/paint manufacturer

Operator(s) and Period(s) of Operation Imperial Varnish and Colour Co. Ltd. (1900 to 1960) but stopped using oil tar as a raw material sometime between 1935 and 1951

## 3. Site Characteristics:

Size (when operated) 0.7 hectare (1935) 1.0 hectare (1951)

Present Land Use Commercial

Planned Land Use Same

Present Occupant(s) Purolator Courier Ltd.

Present Land Use Adjoining Properties North, east, south, west - commercial

Underground Utilities Storm and santary sewers along Lakeshore, Logan and Morse

Soil Conditions Unknown

Site Access Fenced with gate - limited access

4. **Evidence of Buried Wastes:**

Operating Period 35 to 51 years

Excavation History None reported - plant demolished c1966; new building constructed c1969 on piles

Visible Wastes None observed or reported

Odour None observed or reported

Water Pollution None observed or reported

5. **Resource Characteristics:**

Surface Water Lake Ontario/Turning Basin

Proximity Lake Ontario - 1.8 km Turning Basin - 300 m

Use Industrial, recreational

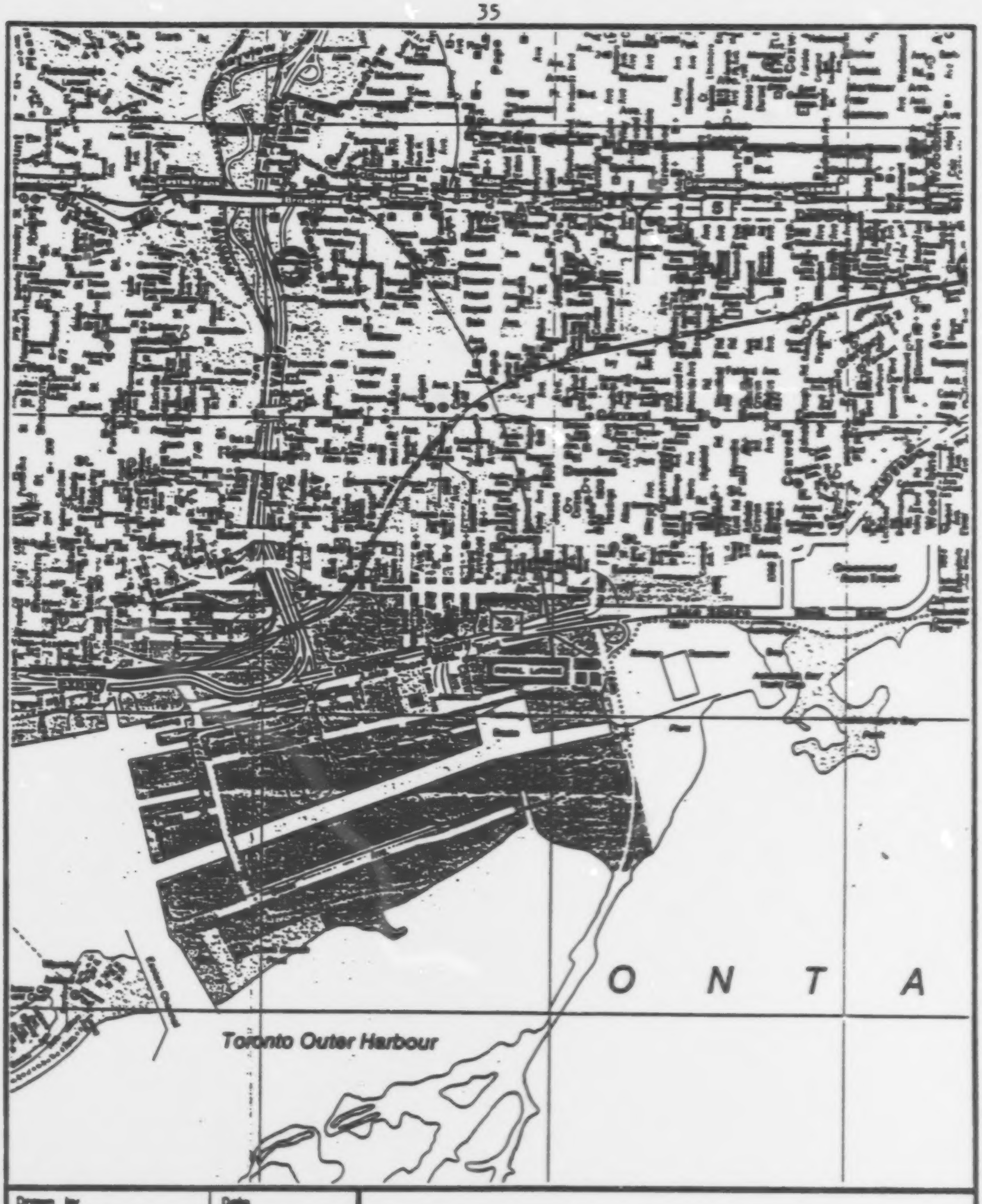
Groundwater, Proximity Unknown

Use Not used

Proximity of Existing Wells None reported

Site Investigations None reported

6. **Comments/Remarks:** Imperial Varnish stopped using tar as a raw material sometime between 1935 and 1951. Change in operation included expansion to include Morse-Carlaw block. In period 1916-1929, approx. 900,000 gal/yr water gas tar processed by Imperial Varnish. 1935 maps show pitch tanks, site occupied before 1900 by J.H. Farr Varnish Works


O N T A
Toronto Outer Harbour

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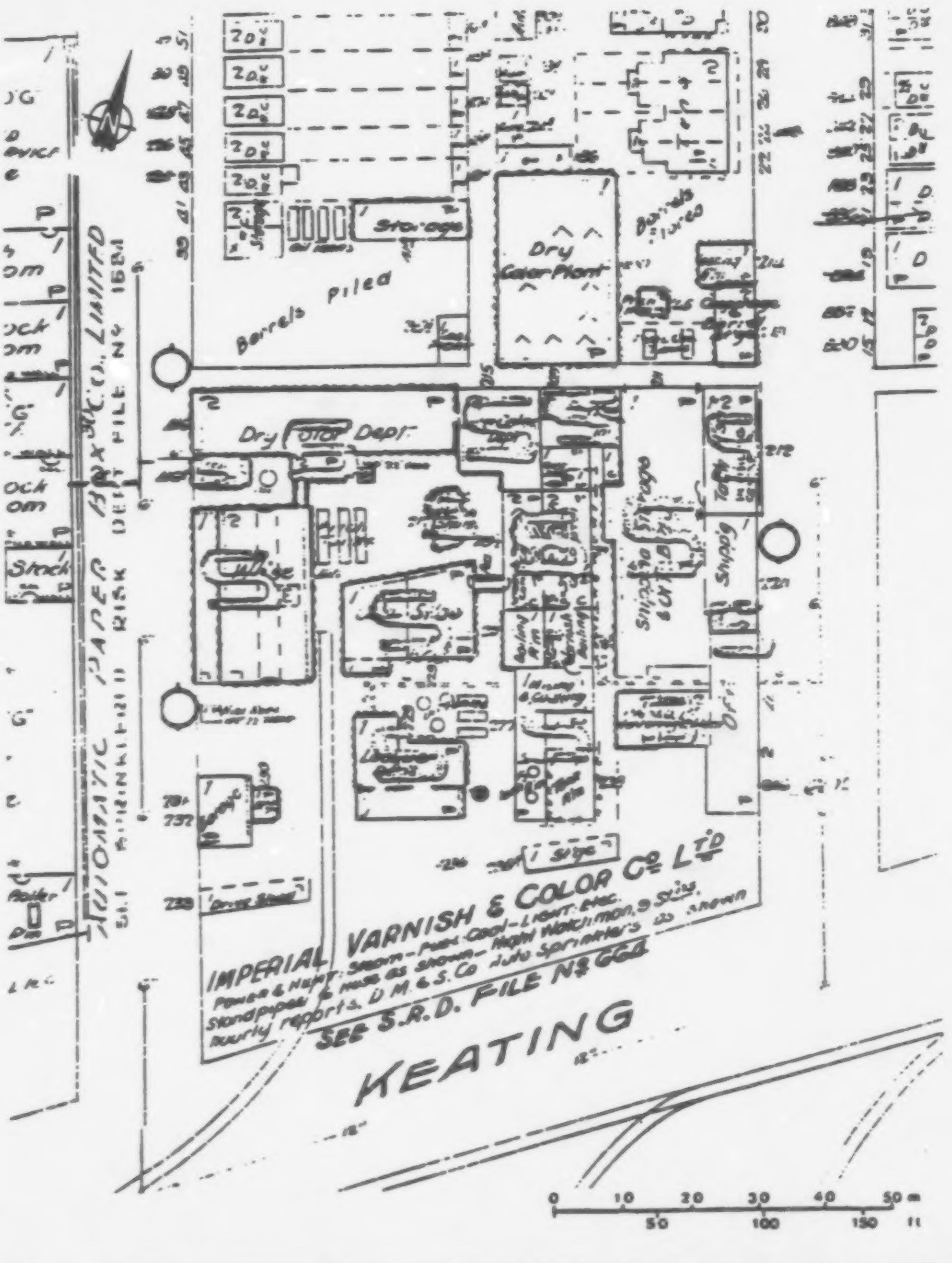
City of Toronto, showing location of Imperial Varnish and Colour site.

INTERA Technologies


IMPERIAL VARNISH & COLOR Co. LTD
Power & Heat: Steam—Fuel Coal—Light: Elec.
Standpipes & hose as shown—Night Watchman, 9 Stns.
hourly reports. D.M. & S. Co. Auto Sprinklers as shown
SEE S.R.D. FILE No. 668
KEATING
Dry Color Plant
Dry Color Dept.
Barrels Piled
Storage
AUTOMATIC PAPER BOX Co. LIMITED
SPECIAL RISK DEPT FILE No. 1681
0 10 20 30 40 50 m
50 100 150 ft

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| Revisions | Date |

1935 Plan of Imperial Varnish and Colour, (Source: Fire insurance plan, Public Archives Canada, NMC-13999, sheet 249)

INTERA Technologies

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Toronto Street Address 5-33 Hahn Place

MOE Region Central (bottom of Berkeley St.)

MOE District Toronto NTS Map Sheet 30 M/11

Historical Maps and Photos Available 1909 fire insurance plan (Public Archives Canada NMC 31775, sheet 10); 1918 fire insurance plan (Public Archives Canada NMC 13996, sheet 10); 1939 air photo (NAPL A6591-37)

2. **Site Identification:**

Name Paterson Co./Barrett Co.

Type of Facility Coal tar distillation/roofing felt manufacturer

Operator(s) and Period(s) of Operation Paterson Manufacturing Co. Ltd. (1900 - 1916); The Barrett Co. Ltd. (1916 - 1921)

3. **Site Characteristics:**

Size (when operated) 0.9 hectare

Present Land Use Residential

Planned Land Use As is

Present Occupant(s) Place St. Laurent (apartment tower) New Dimensions Housing Co-op (apartments)

Present Land Use Adjoining Properties North - public use (day care centre); east - residential; south - residential; west - residential

Underground Utilities Storm and sanitary sewers along Hahn Place and Longboat

Soil Conditions Assumed landfill over silt/clay, bedrock at about 10 m

Site Access Uncontrolled

4. **Evidence of Buried Wastes:**

Operating Period 1900 - 1921 (21 years)

Excavation History Excavation in 1980/81 for construction of apartment complex - caisson excavation at 33 Hahn Place, tar/oil reported

Visible Wastes Tarry and oily soil removed from site during apartment construction, most of contaminated soil near north end of property close to Berkeley St.

Odour None observed, although building at 5 Hahn Place has gas venting system to remove vapours from below building, periodic complaints by tenants during venting

Water Pollution None observed, although building storm sumps not inspected

5. **Resource Characteristics:**

Surface Water Lake Ontario

Proximity 180 m south

Use Recreational, industrial

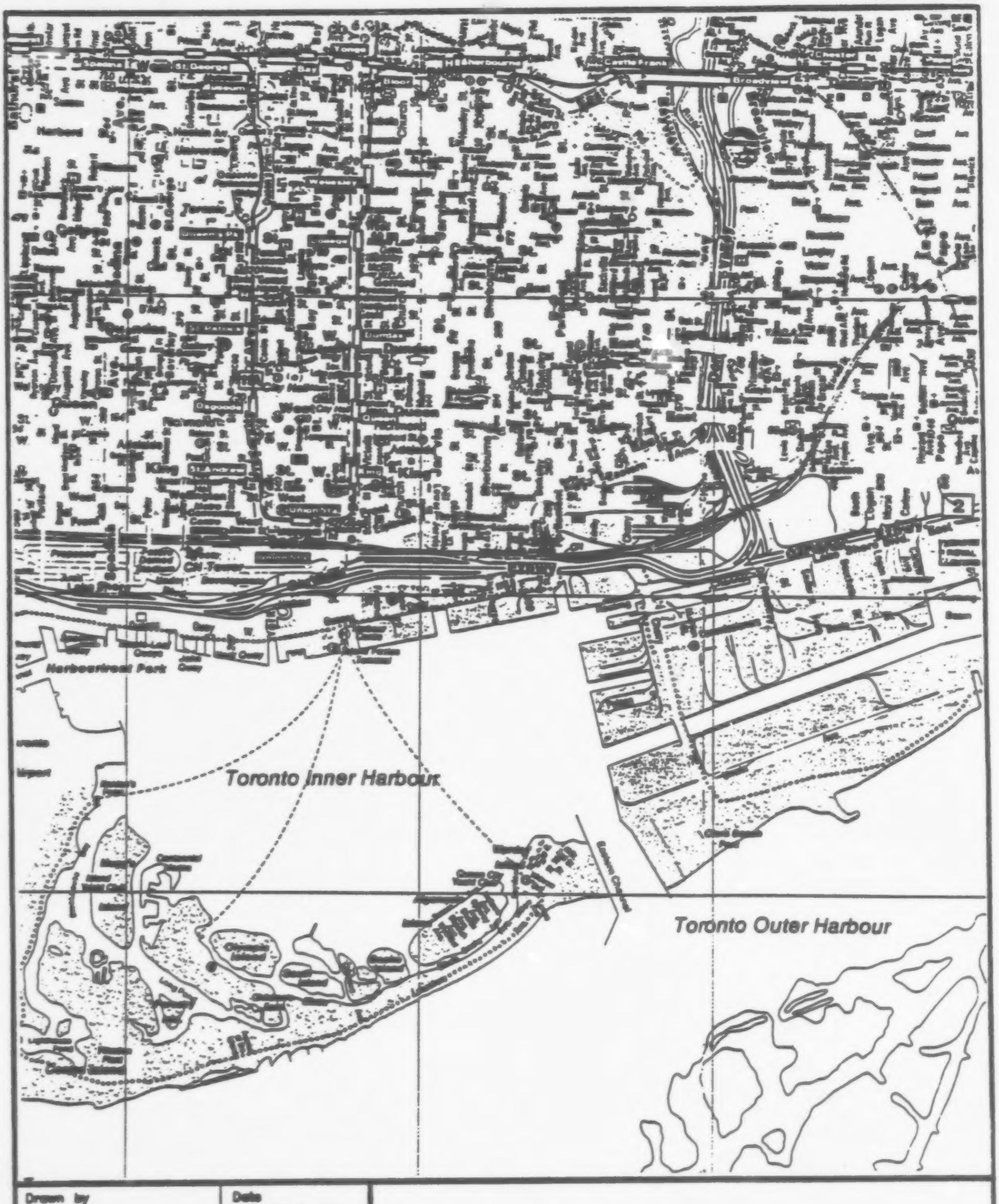
Groundwater, Proximity About 2 m

Use None

Proximity of Existing Wells None reported in area

Site Investigations Boreholes for apartment complex construction

6. **Comments/Remarks:** Oily and tarry soil removed from site during apartment construction, gas venting system in southern building, site was formerly on water front on reclaimed land


Toronto Inner Harbour
Toronto Outer Harbour
Harbourfront Park
CN Tower
Union Stn
Spadina
St. George
Bay
Sherbourne
Castle Frank
Broadview
Bloor
College
Dundas
Queen
King
St. Andrew
Osgoode
Harbord
2

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|---|---|---|
| Drawn by | Date | City of Toronto, showing location of Paterson/Barrett Co. site. |
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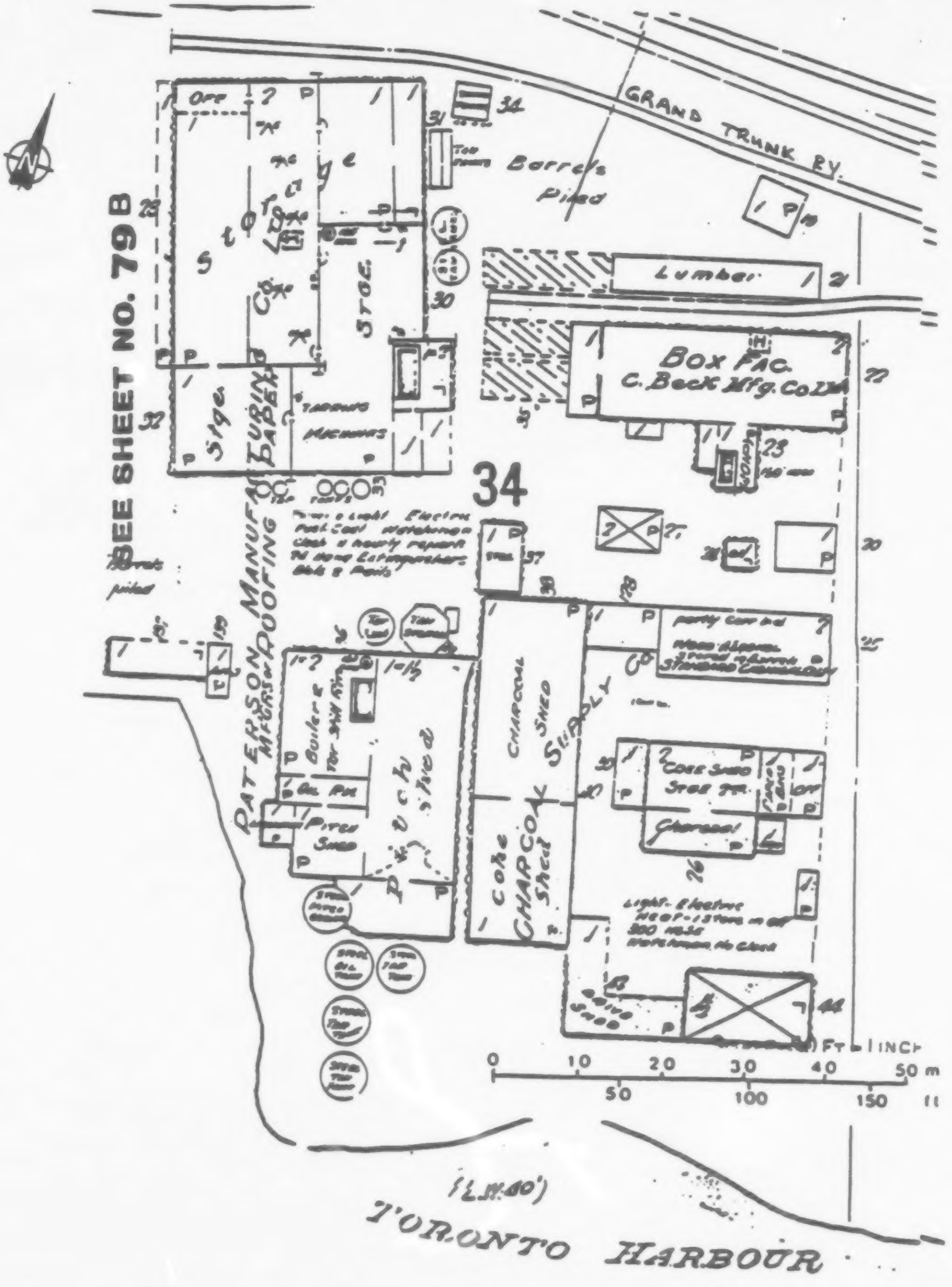
INTERA Technologies


GRAND TRUNK RY.
SEE SHEET NO. 79 B
PATERSON MANUFG. CO. ROOFING
Barrels Piled
Storage
Stge.
Stge.
Tubing Paper
Off
Lumber
Box Fac.
C. Beck Mfg. Co. Ltd.
34
Charcoal Shed
Supply Co
Coke Charcoal Shed
Pitch Shed
Pitch Shed
Boilers
Core Shed
Charcoal
Barrels piled
(L.W. 40')
TORONTO HARBOUR
0 10 20 30 40 50 m
50 100 150 ft

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| | |

1909 Plan of Paterson/Barrett Co. site, (Source: Fire insurance map, Public Archives Canada, NMC-31775, sheet 10)

INTERA Technologies

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Windsor

Street Address In block bounded by Riverside, Belleview, Cadillac & Wyandotte

MOE Region Southwestern

MOE District Windsor

NTS Map Sheet 40 J/6

Historical Maps and Photos Available 1924 fire insurance plan (Regional Collection, University of Western Ontario, key and sheet 13); 1950 air photo (NAPL A12503-47)

2. **Site Identification:**

Name Ford Motor Co.

Type of Facility Coal tar distillation/by-products plant and industrial coal gasification plant

Operator(s) and Period(s) of Operation Ford Motor Co. (1923 to at least 1950)

3. **Site Characteristics:**

Size (when operated) 2.0 hectare

Present Land Use Ford Motor Co. Power Plant

Planned Land Use Same

Present Occupant(s) Ford Motor Co.

Present Land Use Adjoining Properties North - Detroit River; east - residential; west - residential; south - industrial

Underground Utilities Storm sewer and power lines on property; storm & sanitary sewers and water along Wyandotte and Riverside St.

Soil Conditions Unknown

Site Access Controlled, limited access

4. **Evidence of Buried Wastes:**

Operating Period 1923 - at least 1950 (25 - 30 years)

Excavation History Unknown

Visible Wastes None reported or observed

Odour None reported or observed

Water Pollution None reported or observed

5. **Resource Characteristics:**

Surface Water Detroit River

Proximity 50 m north

Use Water supply downstream, recreational

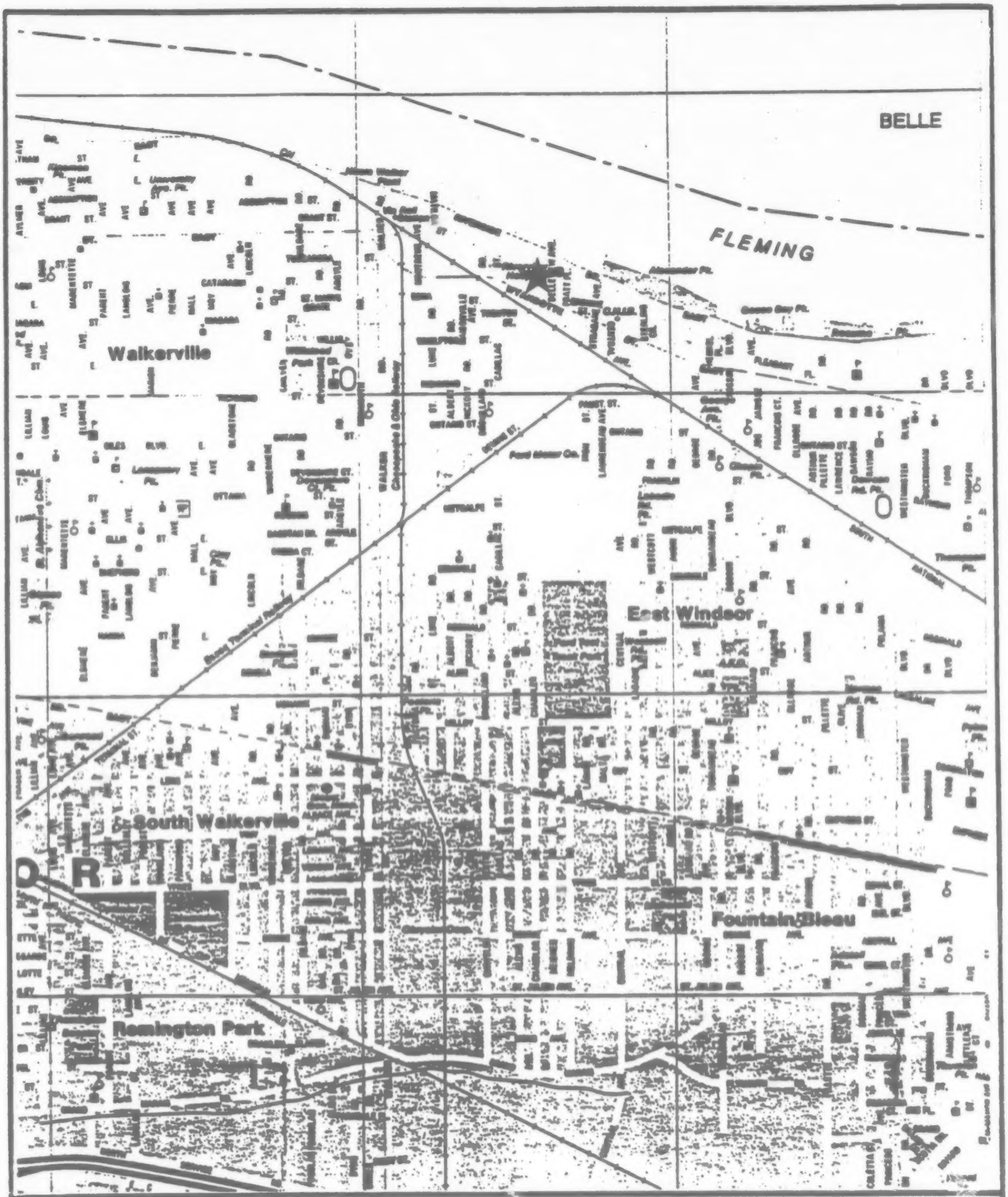
Groundwater, Proximity Unknown

Use Not use

Proximity of Existing Wells Unknown

Site Investigations None reported

6. **Comments/Remarks:** Coal gasification plant, coal tar distillation and associated by-products plant; 1950 air photo shows gasometer and power plant in operation, coal docks on Detroit River, foundations of coke ovens evident on-site, part of bunker house and underground concrete tanks still in place. Off-site disposal areas unknown.


BELLE
FLEMING
Walkerville
Ford Motor Co.
East Windsor
South Walkerville
Fountain Bleau
Remington Park

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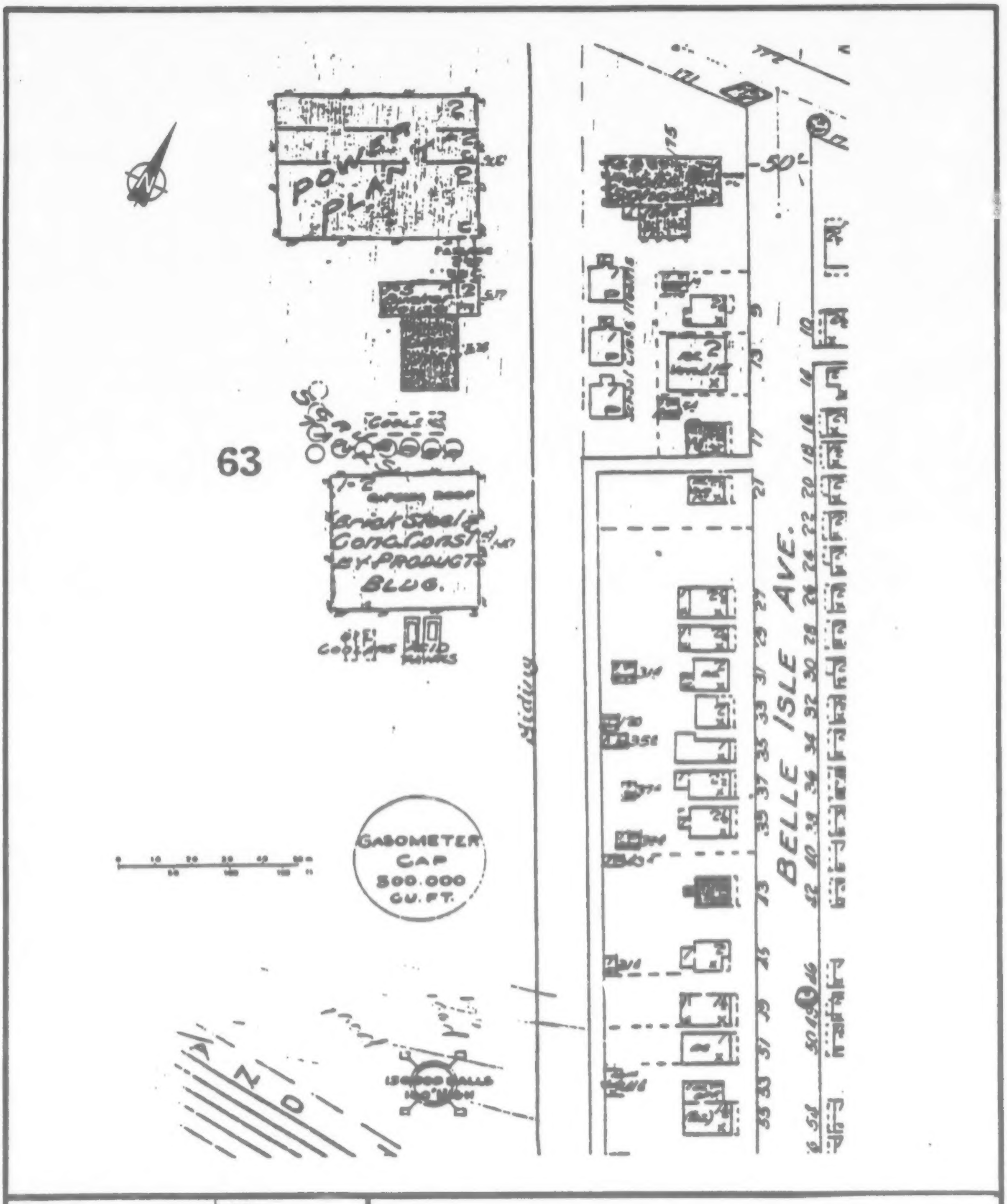
| Revisions | Date |

City of Windsor, showing location of Ford Motor Co. site.

INTERA Technologies


POWER PLANT
63
Brick Steel & Conc. Const.
BY PRODUCTS BLDG.
Coolers
Acid Towers
Siding
GASOMETER CAP 500,000 CU. FT.
BELLE ISLE AVE.

| | | |
|---|---|---|
| Drawn by | Date | 1924 Plan of Ford Motor Co. site, (Source: 1924 revision of 1920 fire insurance map, Regional Collection, University of Western Ontario, sheet 13) |
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| Revisions | Date | |
| | | |
| INTERA Technologies | | |

# CREOSOTING PLANTS

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Sioux Lookout

Street Address 1.6 km east of First Avenue south of Sioux Lookout Superior Junction Rd.

MOE Region Northwestern

MOE District Kenora

NTS Map Sheet 52 J/4

Historical Maps and Photos Available 1950 fire insurance plan (Public Archives Canada NMC 9697, sheet 7); 1928 air photo (NAPL A49-3); 1937 air photo (NAPL A5280-49)

2. **Site Identification:**

Name Calders Canada Ltd.

Type of Facility Creosoting Plant

Operator(s) and Period(s) of Operation Calders Canada Ltd./Canada Creosoting Co. Ltd. (1928 - 1960)

3. **Site Characteristics:**

Size (when operated) Entire site 20 hectares, creosoting plant approx. 0.5 hectares

Present Land Use Vacant, rural

Planned Land Use Same as present

Present Occupant(s) Canadian National Railways

Present Land Use Adjoining Properties North - rural, isolated residential; east, west & south - bush

Underground Utilities None

Soil Conditions Swampy ground, fill, sand and clay over bedrock

Site Access Uncontrolled

4. **Evidence of Buried Wastes:**

Operating Period 1928 - 1960 (32 years)

Excavation History Unknown

Visible Wastes Creosote pitch observed at surface in several locations on site as reported by MOE officials

Odour Odours on-site where creosote is exposed

Water Pollution Unknown

5. **Resource Characteristics:**

Surface Water Unnamed stream drains to Pelican Lake

Proximity 500 m south

Use Recreational

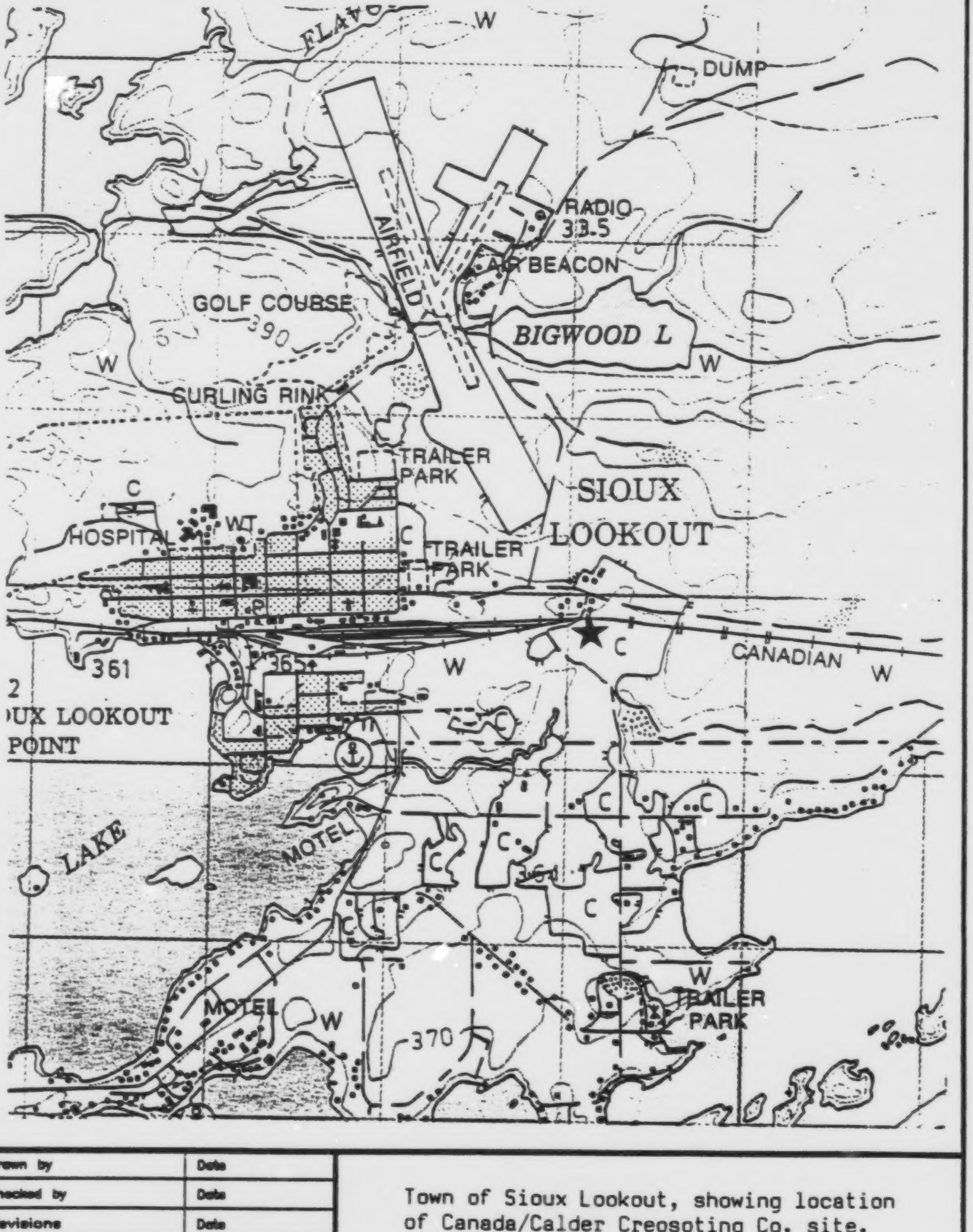
Groundwater, Proximity Close to ground surface - swampy area

Use Limited: water supply for 1 resident north of CN tracks

Proximity of Existing Wells 800 m north of plant site

Site Investigations None reported

6. **Comments/Remarks:** Former plant located outside of Sioux Lookout town limits, site is now vacant, residences close to the site obtain water from town (Lake) supply, site visited by MOE officials


FLAVO
W
DUMP
AIRFIELD
RADIO
33.5
AIR BEACON
GOLF COURSE
390
BIGWOOD L
W
W
CURLING RINK
TRAILER
PARK
SIOUX
LOOKOUT
C
HOSPITAL
WT
C
TRAILER
PARK
361
365
W
C
CANADIAN
W
2
UX LOOKOUT
POINT
C
LAKE
MOTEL
C
C
C
C
C
C
W
TRAILER
PARK
MOTEL
W
370

|  |  |
|---|---|
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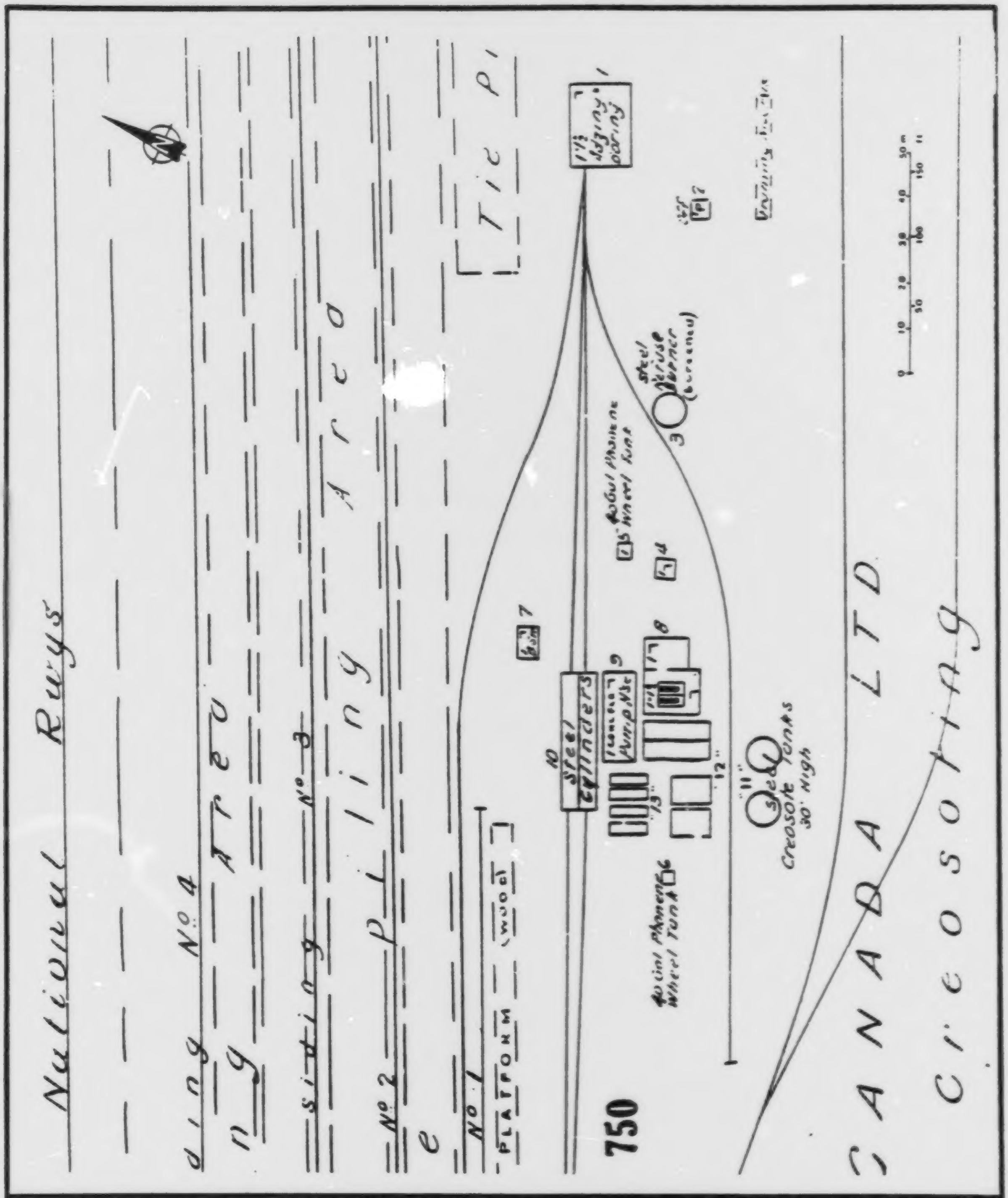
| Checked by | Date |
| Revisions | Date |
|  |  |

Town of Sioux Lookout, showing location of Canada/Calder Creosoting Co. site.

INTERA Technologies


National Rwys
Siding No 4
Siding No 3
No 2
No 1
Platform (wood)
Piling Area
Tie Pi
Steel cylinders
Creosote tanks 30' high
Steel
Canada Creosoting Co Ltd
750

| | | |
|---|---|---|
| Drawn by | Date | 1950 Plan of Canada Creosoting Co. site, Sioux Lookout, (Source: Fire insurance plan, Public Archives Canada, NMC-9697, sheet 7) |
| Checked by | Date | |
| Revisions | Date | |
| | | |

INTERA Technologies

## Fact Sheet for Survey of Industrial Coal Tar Sites

1. **Site Location:**

City Sudbury

Street Address South side Lorne St. between Sutherland and Bulmer Sts.

MOE Region Northeastern

MOE District Sudbury

NTS Map Sheet 41 I/6

Historical Maps and Photos Available 1942 fire insurance plan (Ontario Archives, Sudbury, sheets A and 7); 1957 fire insurance plan (Metropolitan Toronto Library, Map Collection - Sudbury, sheets 40 and 41); 1928 air photo (NAPL A129-5); 1957 air photo

2. **Site Identification:**

Name Canada Creosoting Co.

Type of Facility Creosoting plant

Operator(s) and Period(s) of Operation Canada Creosoting Co. Ltd. (1925 - 1942); Dominion Tar and Chemical Co. Ltd. (1942 - 1963)

3. **Site Characteristics:**

Size (when operated) Entire site - 20 hectare; creosoting plant only 2 hectares

Present Land Use Light industrial, commercial

Planned Land Use Same as present

Present Occupant(s) Atlas Copco, Henninger Diesels, Goodyear Tire, United Tire, Bell Canada Construction Centre, Loeb Wholesale Grocery Warehouse, Coke Bottling Plant, Acklands Automotive and several other commercial operations

Present Land Use Adjoining Properties North - residential, east & west - commercial and residential

Underground Utilities Storm sewers along Lorne St. and across site; sanitary sewers along Lorne, Webbwood, Pacific and across site; watermain along Lorne, Webbwood and Pacific Sts.

Soil Conditions Lots of slag at surface, also fill evident at surface

Site Access Uncontrolled

4. **Evidence of Buried Wastes:**

Operating Period 1925 - 1963 (38 years)

Excavation History Excavation for construction of all of the existing commercial buildings. Excavation for Loeb building extension (1987) encountered creosote contaminated soils, creosote plant area excavated for Webbwood road, watermain and sanitary sewers

Visible Wastes Creosote pitch observed during Loeb excavation and in drainage ditch on Webbwood Drive

Odour Faint creosote odour in area of observed creosote pitch

Water Pollution Small discharge of oily water from slag adjacent to Webbwood ditch in area of observed creosote pitch

5. **Resource Characteristics:**

Surface Water Junction Creek

Proximity 200 m

Use Recreational

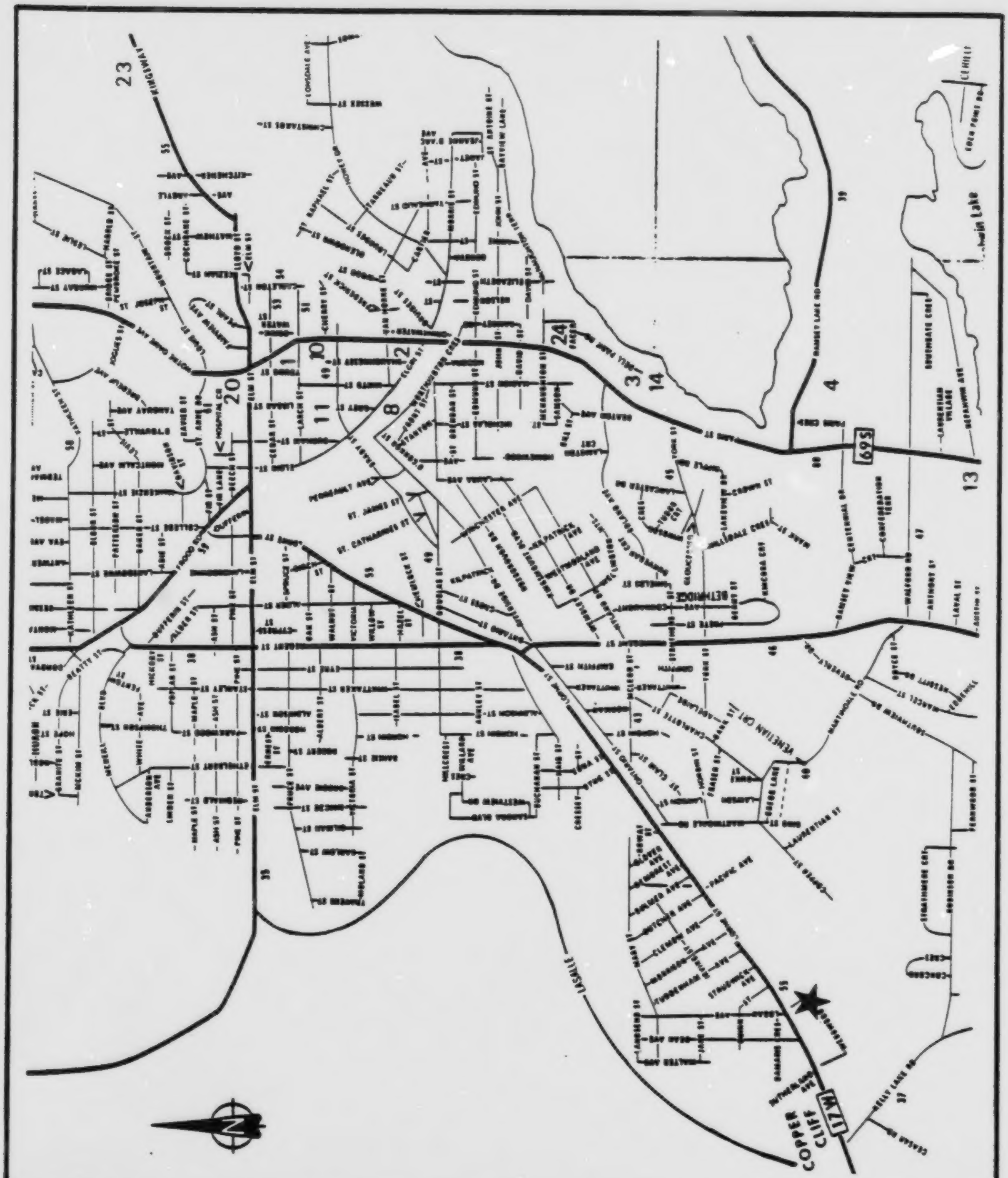
Groundwater, Proximity Unknown

Use None

Proximity of Existing Wells Unknown

Site Investigations None reported

6. **Comments/Remarks:** Creosote plant (retorts, tanks, etc.) were located at east end of Webbwood Dr. in area of observed creosote pitch. All buildings on-site are constructed on grade without basements. Surface water flow is from northwest to southeast across site to Junction Creek.


23
KINGSWAY
24
20
10
11
8
2
3
14
4
695
13
LASALLE
COPPER CLIFF
17(W)
N

| | |
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| Revisions | Date |
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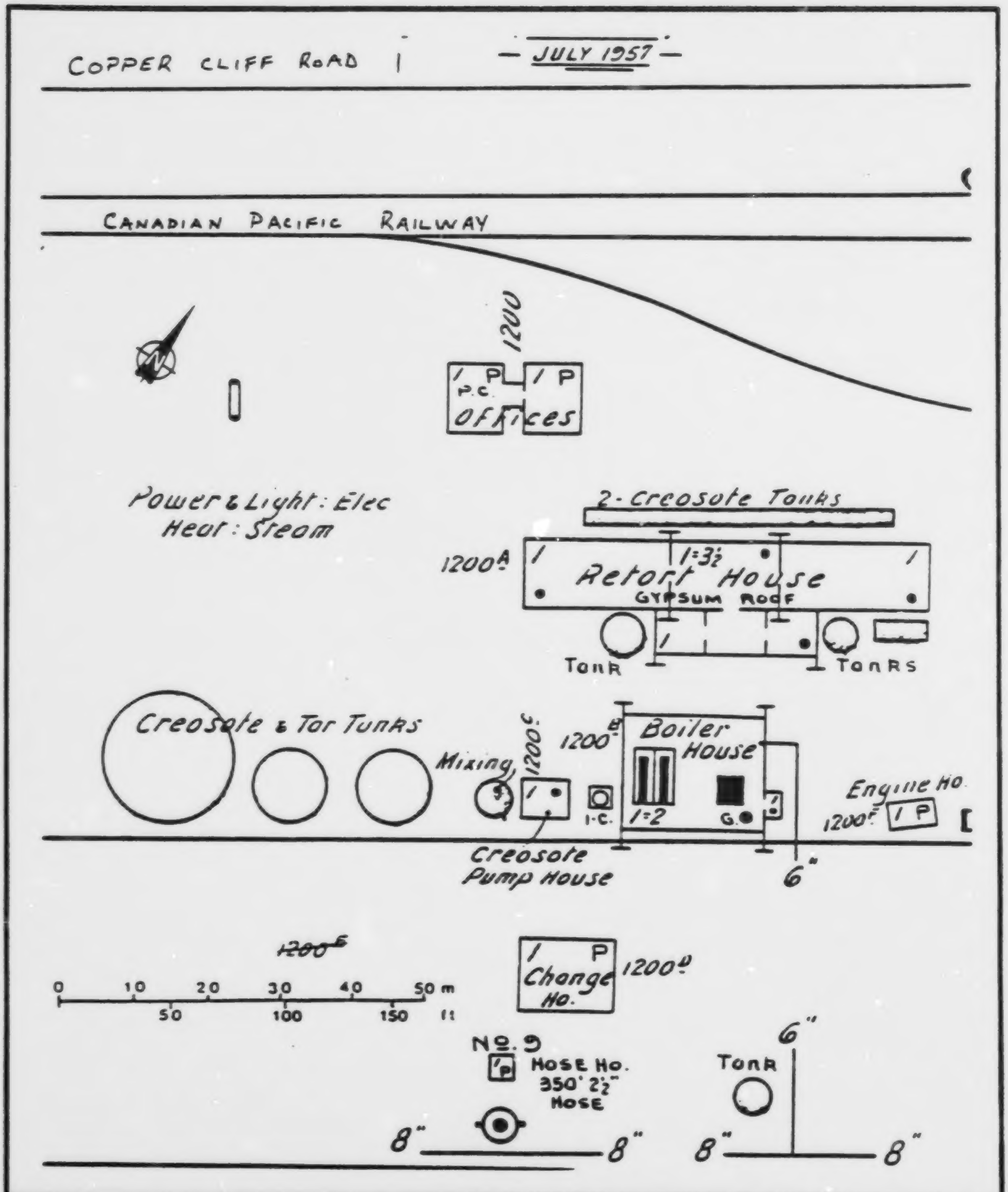
City of Sudbury, showing location of Canada Creosoting Co./Domtar Chemicals site.

INTERA Technologies


COPPER CLIFF ROAD
— JULY 1957 —
CANADIAN PACIFIC RAILWAY
1200
1 P
P.C.
1 P
Offices
Power & Light: Elec
Heat: Steam
2-Creosote Tanks
1200A
1
1:3½
Retort House
GYPSUM ROOF
1
Tank
Tanks
Creosote & Tar Tanks
Mixing
1200C
1
1200B
Boiler House
1:2
I.C.
G.
Creosote Pump House
6"
Engine Ho.
1200F
1 P
~~1200~~E
1 P
Change Ho.
1200D
0 10 20 30 40 50 m
50 100 150 ft
No. 9
1P
HOSE HO.
350' 2½"
HOSE
Tank
6"
8"
8"
8"
8"

| | |
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1957 Plan of Canada Creosoting Co. site, (Source: Fire insurance plan, Metropolitan Toronto Library - Map Collection - Sudbury, sheets 40 and 41)

INTERA Technologies

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Thunder Bay Street Address north of Carpenter, east of 105th Avenue, on McKellar Is.

MOE Region Northwestern

MOE District Thunder Bay NTS Map Sheet 52 A/6

Historical Maps and Photos Available no historical maps; 1950 air photo (NAPL A12667-73); 1938 historic photo (Thunder Bay Public Library P-13(8))

2. **Site Identification:**

Name Canada Creosoting Co. Ltd.

Type of Facility Creosoting plant

Operator(s) and Period(s) of Operation Canada Creosoting Co. (1940 - 1942); Dominion Tar and Chemical Co. (1942 - 1946)

3. **Site Characteristics:**

Size (when operated) Entire site about 10 hectares, creosoting plant 1 - 2 hectare

Present Land Use Heavy industrial, petroleum product storage area

Planned Land Use As is

Present Occupant(s) Husky Oil Ltd.

Present Land Use Adjoining Properties North - Kaministikwia River; west - vacant; east - Shell Oil Ltd., product storage area; south - vacant

Underground Utilities No storm or sanitary sewers

Soil Conditions Unknown

Site Access Controlled

4. **Evidence of Buried Wastes:**

Operating Period 1940 - 1946 (6 years)

Excavation History Excavation for storage tank construction

Visible Wastes Creosote/tar observed at surface surrounding 30 m diameter water ponds

Odour No odours detected or reported

Water Pollution None observed or reported

5. **Resource Characteristics:**

Surface Water Kaministikwia River

Proximity Adjacent

Use Recreational, industrial

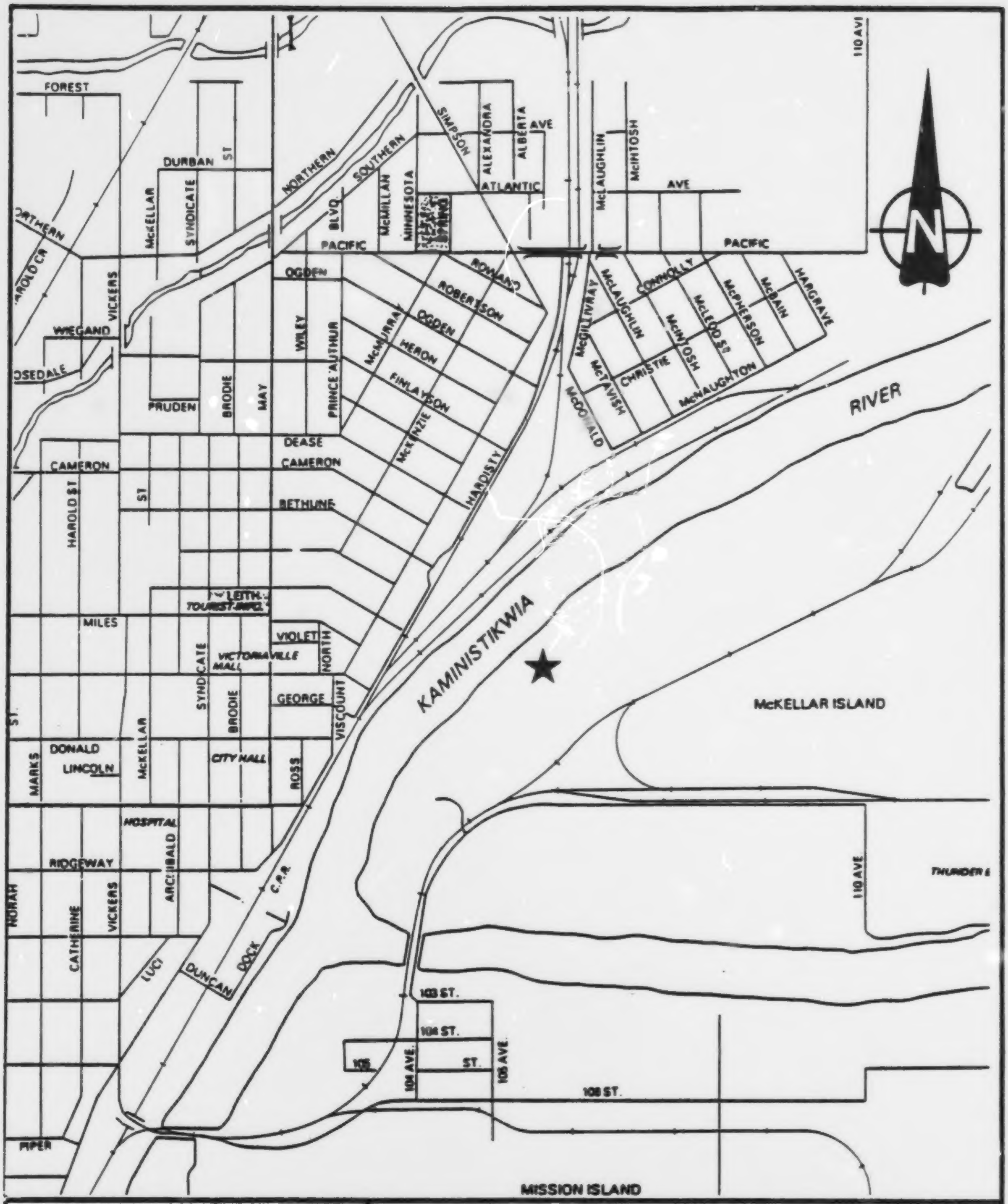
Groundwater, Proximity 1 - 2 m

Use None

Proximity of Existing Wells None reported

Site Investigations None reported

6. **Comments/Remarks:** Site identification from City Directories (1940 - 1946) and City Assessment Rolls (1941 and 1942); building foundations, old steel tanks and creosote pitch evident at surface of site


N
FOREST
DURBAN
ST
NORTHERN
SOUTHERN
SIMPSON
ALEXANDRA
ALBERTA
AVE
ATLANTIC
McLAUGHLIN
McINTOSH
AVE
110 AVE
McKELLAR
SYNDICATE
BLVD.
McMILLAN
MINNESOTA
PACIFIC
PACIFIC
HAROLD CR
VICKERS
OGDEN
ROWAND
ROBERTSON
McGILLIVRAY
McLAUGHLIN
CONNOLLY
McINTOSH
McLEOD ST.
McPHERSON
McBAIN
HARGRAVE
WIEGAND
ROSEDALE
WILEY
PRINCE ARTHUR
McMURRAY
OGDEN
HERON
FINLAYSON
McTAVISH
CHRISTIE
McNAUGHTON
McDONALD
RIVER
PRUDEN
BRODIE
MAY
DEASE
CAMERON
CAMERON
McKENZIE
HARDISTY
HAROLD ST
ST
BETHUNE
LEITH
TOURIST INFO.
MILES
VIOLET
NORTH
KAMINISTIKWIA
SYNDICATE
VICTORIAVILLE MALL
GEORGE
VISCOUNT
BRODIE
McKELLAR ISLAND
ST.
DONALD
LINCOLN
MARKS
McKELLAR
CITY HALL
ROSS
HOSPITAL
RIDGEWAY
ARCHIBALD
110 AVE
THUNDER
NORAH
CATHERINE
VICKERS
C.P.R.
LUCI
DUNCAN
DOCK
103 ST.
104 ST.
105
104 AVE.
ST.
105 AVE.
106 ST.
PIPER
MISSION ISLAND

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City of Thunder Bay, showing location of Canada Creosoting Co. site.

INTERA Technologies

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Trenton

Street Address 126 Marmora St., site bounded by Marmora St., CP tracks, CN tracks and Trent River

MOE Region Southeastern

MOE District Belleville

NTS Map Sheet 31 C/4

Historical Maps and Photos Available 1917 fire insurance plan (Regional Collection, University of Western Ontario, sheet 12); 1949 fire insurance plans (Public Archives Canada NMC 9740, sheets 12 and 26); 1948 air photo (NAPL A11795-68)

2. **Site Identification:**

Name Canada Creosoting Co. Ltd./Domtar

Type of Facility Creosoting plant

Operator(s) and Period(s) of Operation Canada Creosoting Co. Ltd. (1913 - 1942); Dominion Tar and Chemical/Domtar (1942 - present)

3. **Site Characteristics:**

Size (when operated) Entire site 18 hectare

Present Land Use Heavy industrial manufacturing, active wood preservative plant

Planned Land Use Same as present

Present Occupant(s) Domtar Chemicals Group, Wood Preserving Division

Present Land Use Adjoining Properties North - industrial (Domtar paper); east - residential; south - institutional (police station); west - Trent River

Underground Utilities Storm and sanitary sewers and watermain along Marmora St., unknown manhole on-site

Soil Conditions Silty, gravelly sands (1 - 4 m thickness) overlying fractured limestone

Site Access Controlled, fenced, gate at Marmora St.

4. **Evidence of Buried Wastes:**

Operating Period 1913 - present (75 years)

Excavation History Recent test pitting and trenching (1987) as part of hydrogeologic study, oily seepages into pits and trenches

Visible Wastes Oil/creosote reported in trenches and exploratory boreholes in soil and rock, oily contaminated runoff observed near Trent River, pit on bank of river contains oil and water mixture

Odour Creosote/tar odours prevalent on-site - active creosoting plant

Water Pollution Oil slicks on standing water in ditch that discharges to Trent River, oily seeps from embarkment observed flowing to River

5. **Resource Characteristics:**

Surface Water Trent River, drainage ditch along north edge of property

Proximity Adjacent

Use Recreational/industrial

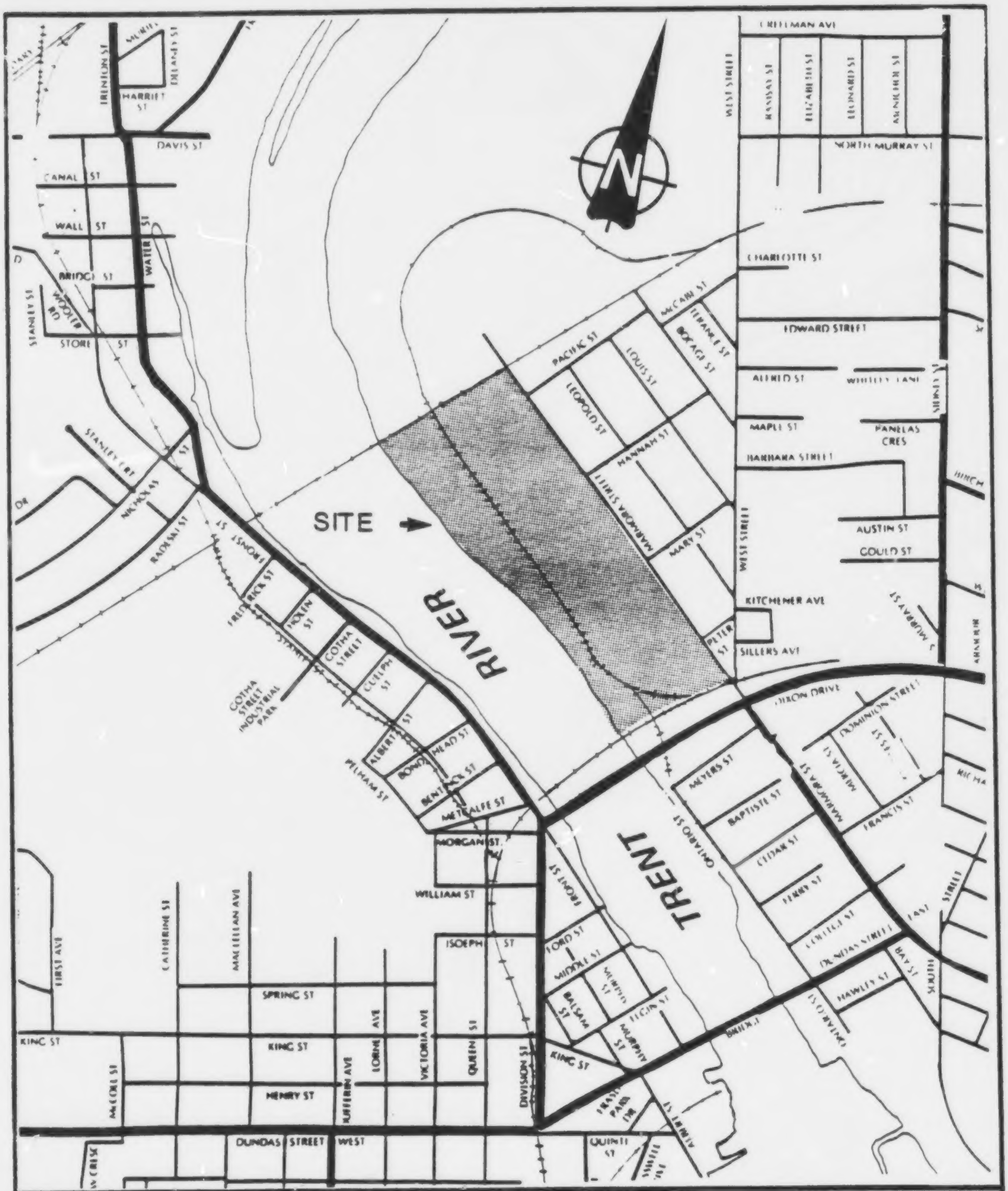
Groundwater, Proximity Within 1 m of ground surface

Use None

Proximity of Existing Wells None reported in area

Site Investigations River sediment sampling (Conestoga Rovers & Assoc., 1987); hydrogeologic investigations (Gartner Lee, 1986; 1987)

6. **Comments/Remarks:** Oily creosote contamination has been observed within overburden and deeper in the fractured bedrock; booms are in place at selected locations in the Trent River to contain contaminants; site under investigation by MOE and property owner; active creosoting plant


N
SITE
TRENT
RIVER
TRENTON ST
HARRIET ST
DELANEY ST
DAVIS ST
CANAL ST
WALL ST
WATER ST
BRIDGE ST
STANLEY ST
STORE ST
STANLEY CRT
NICHOLAS ST
RADSKI ST
FREDERICK ST
GOTHA STREET
GUELPH ST
GOTHA STREET INDUSTRIAL PARK
ALBERT ST
BONDHEAD ST
BENTINCK ST
METCALFE ST
PELHAM ST
MORGAN ST
WILLIAM ST
JOSEPH ST
SPRING ST
KING ST
HENRY ST
DUNDAS STREET WEST
FIRST AVE
CATHERINE ST
MACLELLAN AVE
McCOLL ST
DUFFERIN AVE
LORNE AVE
VICTORIA AVE
QUEEN ST
DIVISION ST
FRONT ST
FORD ST
MIDDLE ST
BALSAM ST
ELGIN ST
MURPHY ST
QUINTE ST
CREELMAN AVE
WEST STREET
RAMSAY ST
ELIZABETH ST
LEONARD ST
NORTH MURRAY ST
CHARLOTTE ST
EDWARD STREET
ALFRED ST
WHITLEY LANE
MAPLE ST
PAMELAS CRES
BARBARA STREET
SIDNEY ST
AUSTIN ST
GOULD ST
KITCHENER AVE
SILLERS AVE
MURRAY ST
McCABE ST
PACIFIC ST
LOUIS ST
LEOPOLD ST
HANNAH ST
MARMORA ST
MARY ST
PETER ST
DIXON DRIVE
DOMINION STREET
MEYERS ST
BAPTISTE ST
CEDAR ST
ONTARIO ST
FRANCIS ST
COLLEGE ST
DUNDAS STREET EAST
HAWLEY ST
BAY ST
SOUTH ST

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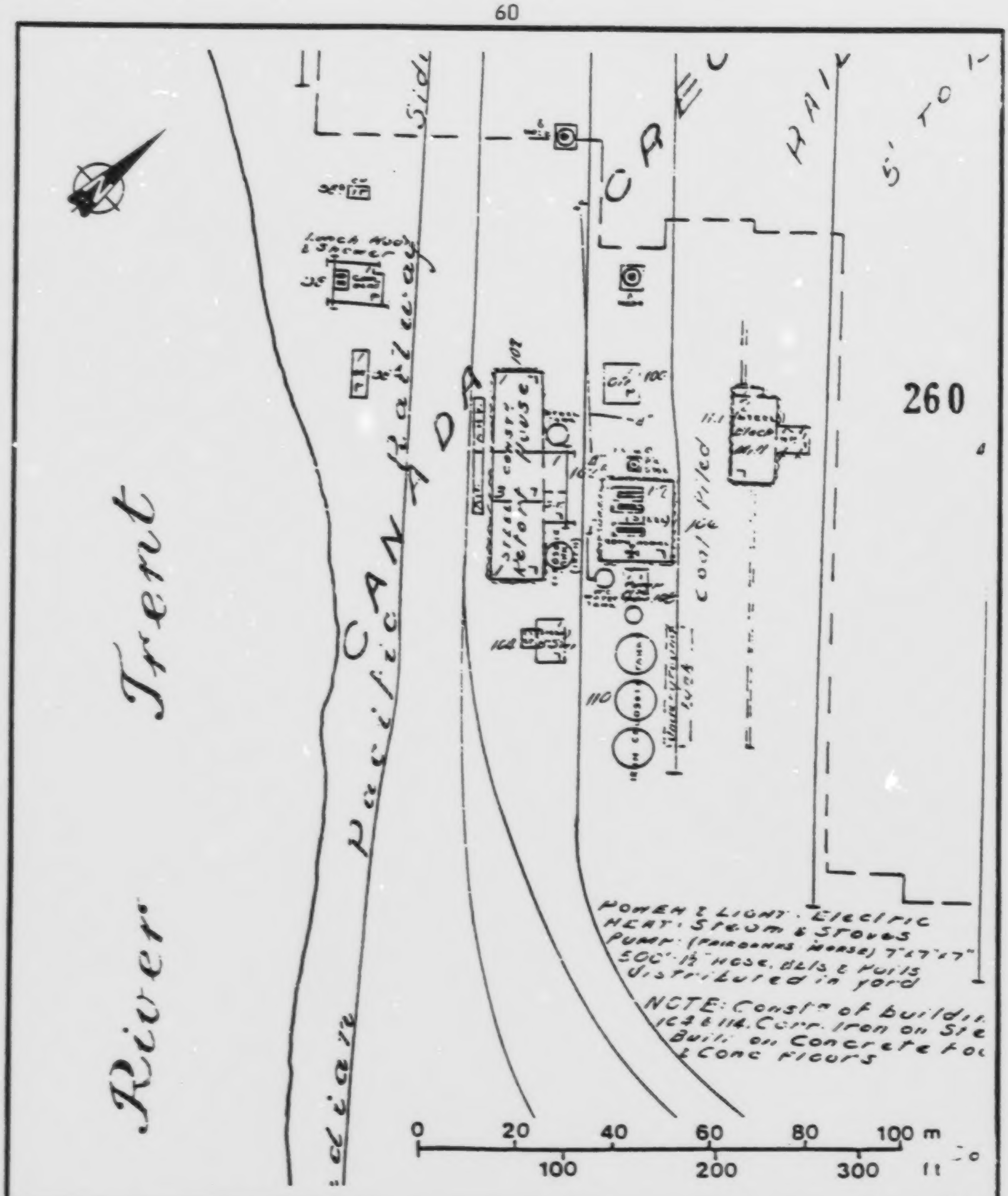
City of Trenton, showing location of Canada Creosoting Co./Domtar Chemicals site.

INTERA Technologies


River Trent
Canadian Pacific Railway
Siding
CREOSOTING
CO
260
Lunch Room & Shower
Steam Constr. Retort House
107
108
110
111
100
coal piled
POWER & LIGHT: Electric
HEAT: Steam & Stoves
PUMP: (FAIRBANKS MORSE) 7"x7"x7"
500' 1½" hose. bbls & pails distributed in yard
NOTE: Constn of buildings 104 & 114. Corr. Iron on Ste
Built on Concrete Fo
& Conc Floors
0
20
40
60
80
100 m
100
200
300
ft

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Checked by — Date
Revisions — Date

1949 Plan of Canada Creosoting Co. site, (Source: Fire insurance plan, Public Archives Canada, NMC-9740, sheet 12)

INTERA Technologies

# ROOFING FELT AND TARRED PAPER PRODUCTS MANUFACTURERS

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Brantford
Street Address 22 Sydenham St.

MOE Region West Central

MOE District Hamilton
NTS Map Sheet 40 P/1

Historical Maps and Phots Available 1912 Revision of 1903 fire insurance plan (Regional Collection, University of Western Ontario, sheet 45/154); 1950 fire insurance plan (Public Archives Canada NMC 9331, sheet 27); 1964 air photo (NAPL A18348-208)

2. **Site Identification:**

Name Brantford Roofing Co. Ltd.

Type of Facility Roofing felt and tarred paper products manufacturer

Operator(s) and Period(s) of Operation Brantford Roofing Co. (1906 - 1954) possibly Murray Brantford Ltd./Domtar Construction Materials (1954 - present)

3. **Site Characteristics:**

Size (when operated) 1 - 2 hectare (expansion from 1912 to 1950)

Present Land Use Industrial - Domtar Roofing Products plant

Planned Land Use As is

Present Occupant(s) Domtar Roofing Products Plant

Present Land Use Adjoining Properties North - CN rail line; east - residential, commercial; south - residential; west - residential

Underground Utilities Storm and sanitary sewers along Pearl St.; water along Pearl, Sydenham and Niagara

Soil Conditions Unknown

Site Access Controlled

4. **Evidence of Buried Wastes:**

Operating Period 1906 - mid 1950s (about 50 years)

Excavation History Within last 10 years - excavation in area of new limestone tank, old concrete tank removed, no tar reported in soil; also excavation to install storm water drain, no tar reported

Visible Wastes None observed or reported

Odour Asphaltic odour associated with active roofing plant operation

Water Pollution None observed or reported

5. **Resource Characteristics:**

Surface Water Grand River

Proximity Approximately 1 km south of site

Use Recreational, industrial

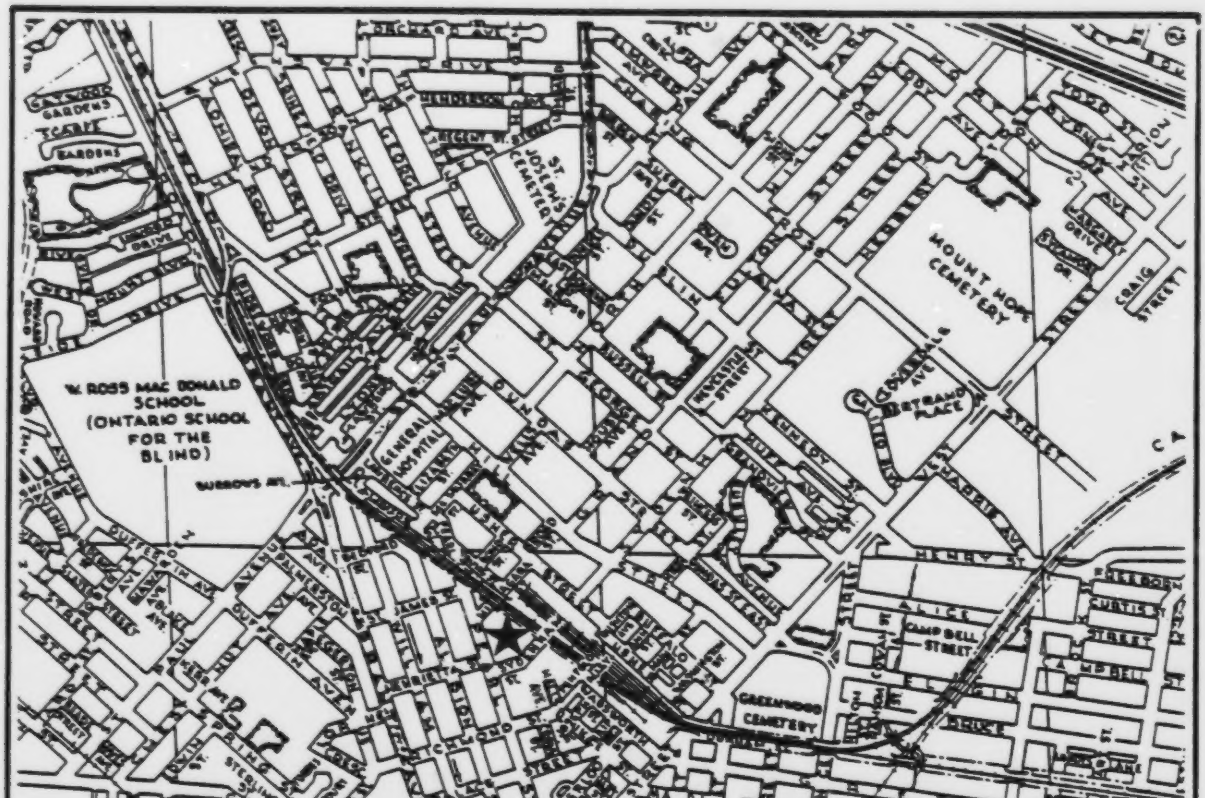
Groundwater, Proximity Unknown

Use None

Proximity of Existing Wells None known

Site Investigations None known

6. **Comments/Remarks:** 1912 fire insurance plan shows several underground storage tanks and tar melting tanks; later operations of Murray Brantford/Domtar likely did not handle/use coal tar


ORCHARD AVE.
HENDERSON AVE.
REGENT ST.
ST. JOSEPH'S CEMETERY
MOUNT HOPE CEMETERY
CRAIG STREET
W. ROSS MAC DONALD SCHOOL (ONTARIO SCHOOL FOR THE BLIND)
GENERAL HOSPITAL
BURROWS AVE.
DUFFERIN AVE.
HENRY ST.
CAMPBELL STREET
CURTIS ST.
GREENWOOD CEMETERY
STERLING ST.
GRAND RIVER
SPRING LANE
HILDA ST.
COCKSHUTT PARK
FAIRVIEW COURT
EARL HAIG PARK
DRUMMOND AVE.

| | | |
|---|---|---|
| Drawn by | Date | City of Brantford, showing location of Brantford Roofing Co. site. |
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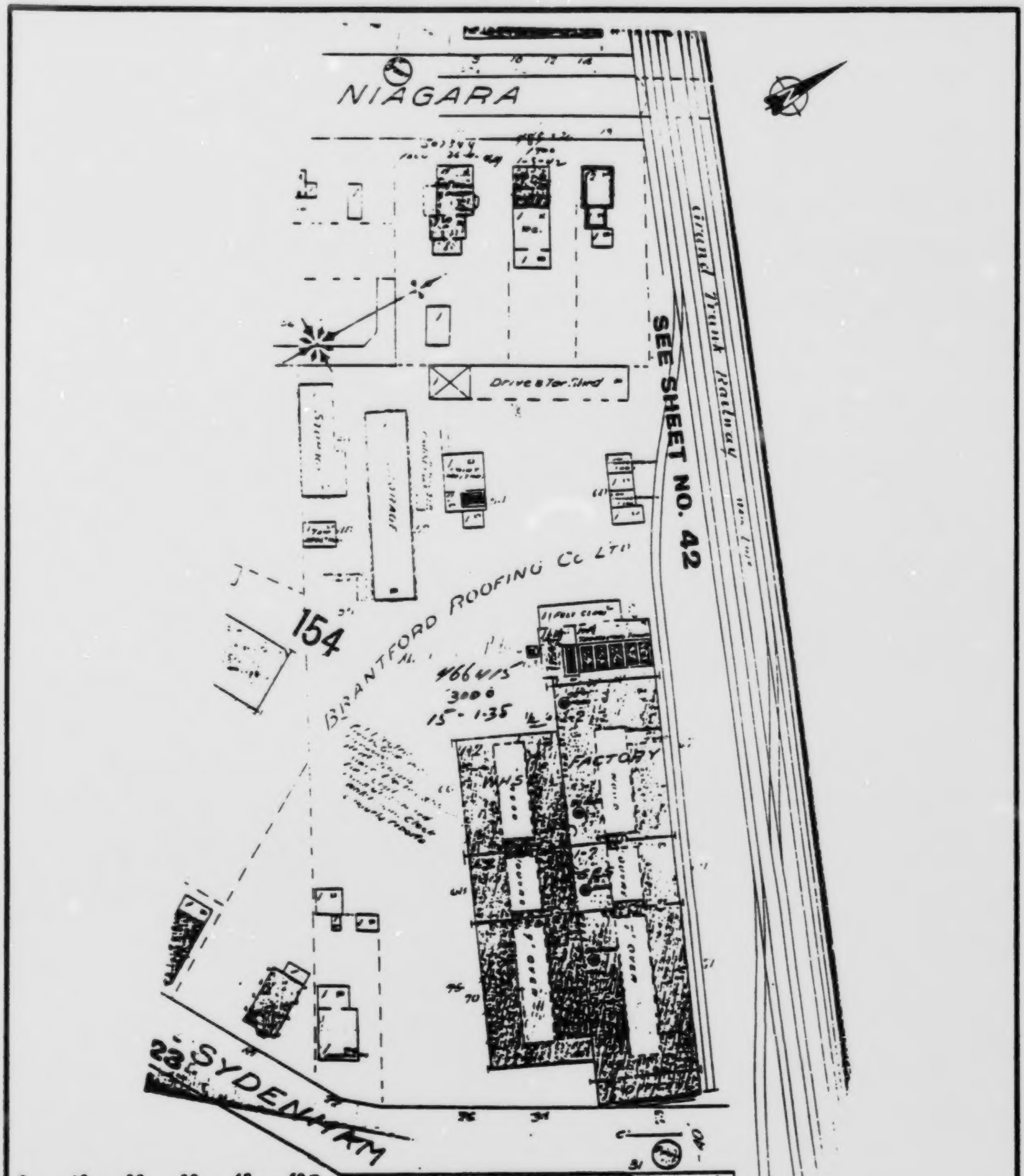
INTERA Technologies


NIAGARA
Drive & Tar Shed
SEE SHEET NO. 42
Grand Trunk Railway
BRANTFORD ROOFING Co LTD
154
FACTORY
WHS
SYDENHAM
0 10 20 30 40 50 m
50 100 150 ft

| | |
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| | |

1912 Plan of Brantford Roofing Co. site, (Source: 1912 revision of 1903 fire insurance plan, Regional Collection, University of Western Ontario, sheet 45)

INTERA Technologies

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Hamilton

Street Address 70 Beach Rd.

MOE Region West central

MOE District Hamilton

NTS Map Sheet 30 M/5

Historical Maps and Photos Available 1941 fire insurance plan (cut in pieces) (Public Archives Canada NMC 10590, sheet 3); 1965 air photo (NAPL A18751-14)

2. **Site Identification:**

Name Building Products Ltd.

Type of Facility Roofing felt and tarred paper products manufacturer

Operator(s) and Period(s) of Operation F.W. Bird and Son/Building Products Ltd. (1910 - 1970)

3. **Site Characteristics:**

Size (when operated) 1 - 2 hectare

Present Land Use Industrial storage area

Planned Land Use Same as present

Present Occupant(s) Stelco Frost Works - storage and warehousing of vinyl chain link fence, welded fabrics

Present Land Use Adjoining Properties South - heavy industrial (Domglass); east - industrial; north - residential/commercial; west - industrial

Underground Utilities Storm and sanitary sewers, gas and watermain along Beach Rd., storm and sanitary sewer hook-ups to building no. 21

Soil Conditions Sandy soil overlying clay

Site Access Controlled, fenced

4. **Evidence of Buried Wastes:**

Operating Period 1910 - 1954 period of likely coal tar use - 44 years

Excavation History Excavation on-site in 1969 for installation of new storm sewers

Visible Wastes None reported or observed

Odour None reported or observed

Water Pollution None reported or observed

5. **Resource Characteristics:**

Surface Water Hamilton Harbour (Lake Ontario)

Proximity Approx. 1 km

Use Industrial

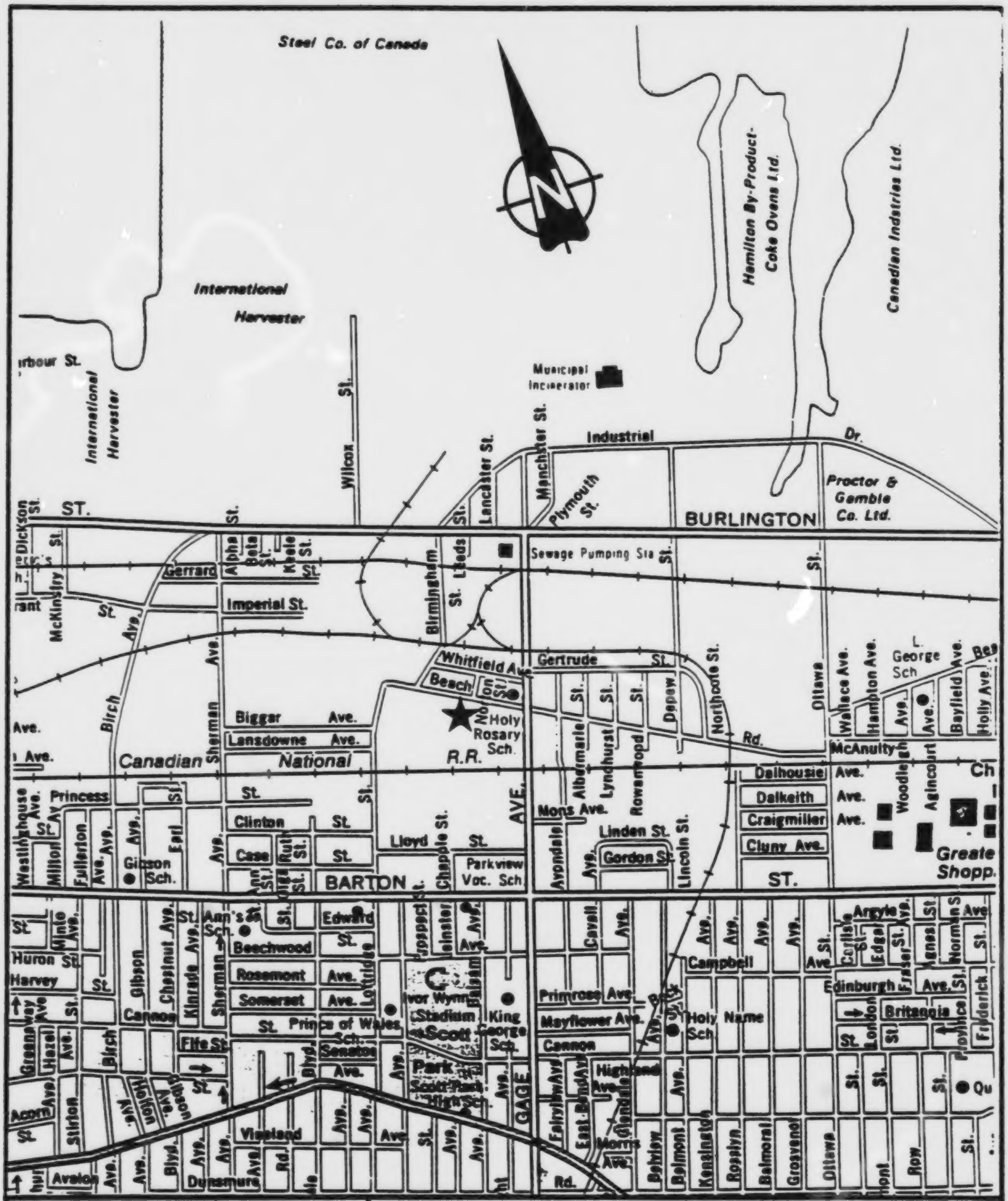
Groundwater, Proximity Unknown

Use None reported

Proximity of Existing Wells None reported

Site Investigations Unknown

6. **Comments/Remarks:** Early roofing felt manufacturer, coal tar likely in use in earlier (1910 - 1950) operations


Steel Co. of Canada
N
International Harvester
International Harvester
Hamilton By-Product-Coke Ovens Ltd.
Canadian Industries Ltd.
Municipal Incinerator
Industrial Dr.
Proctor & Gamble Co. Ltd.
BURLINGTON ST.
Sewage Pumping Sta.
Wilcox St.
Lancaster St.
Manchester St.
Plymouth St.
Birmingham St.
Leeds St.
Gerrard
Imperial St.
Birch Ave.
Sherman Ave.
Whitfield Ave.
Gertrude St.
Beach
Holy Rosary Sch.
Biggar Ave.
Lansdowne Ave.
Canadian National R.R.
Rd.
Northcote St.
Depew
Ottawa St.
McAnulty
Dalhousie Ave.
Dalkeith Ave.
Craigmiller Ave.
Cluny Ave.
Princess St.
Clinton St.
Case St.
Lloyd St.
Parkview Voc. Sch.
Mons Ave.
Linden St.
Gordon St.
Lincoln St.
BARTON ST.
GAGE AVE.
Gibson Sch.
St. Ann's Sch.
Beechwood
Rosemont Ave.
Somerset Ave.
Edward St.
Campbell
Ivor Wynne Stadium
Scott Park
King George Sch.
Prince of Wales Sch.
Primrose Ave.
Mayflower Ave.
Cannon
Holy Name Sch.
Highland Ave.
Edinburgh
Britannia
Greater Shopp.
Vineland
Dunsmure
Avalon
Rd.

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City of Hamilton, showing location of Building Products Ltd. site (70 Beach St.).

INTERA Technologies

# Fact Sheet for Survey of Industrial Sites

## 1. Site Location:

City Cornwall

Street Address Seventh Avenue, east part of block bounded by Seventh, Cumberland, CNR and Hwy. 2

MOE Region Southeastern

MOE District Cornwall

NTS Map Sheet

Historical Maps and Photos Available 1947 fire insurance plan (Public Archives Canada NMC 52963, sheet 22); 1958 air photo (NAPL A16242, 203, 204); 1963 air photo (NAPL 18371, 6, 7)

## 2. Site Identification:

Name Domtar Construction Material Ltd.

Type of Facility Roofing felt and tarred paper products manufacturer (manufacture of tar impregnated cardboard pipe)

Operator(s) and Period(s) of Operation Dominion Tar and Chemical Ltd./Domtar (approx. 1947 - 1969)

## 3. Site Characteristics:

Size (when operated) 3.2 hectare

Present Land Use Industrial

Planned Land Use Part of property presently for sale and north end of property proposed for street extension

Present Occupant(s) Cowall Manufacturing Ltd., Amazing Waste Disposal Ltd., Holiday Inn, vacant building

Present Land Use Adjoining Properties North - residential; east - residential; south - commercial; west - commercial

Underground Utilities Utility lines along Seventh and Cumberland

Soil Conditions Fill, sand, silt, clay and till from surface to bedrock

Site Access Fenced but unlimited access

4. **Evidence of Buried Wastes:**

Operating Period 1947 - 1969 (approximatley 22 years)

Excavation History Second building on-site by 1972

Visible Wastes Tar piles and waste pipe exposed at surface

Odour Detectable odour of tar in area of tar piles

Water Pollution Trace levels of PAH found in surface waters and surface water sediments

5. **Resource Characteristics:**

Surface Water St. Lawrence River

Proximity 1.5 km

Use Recreational, industrial

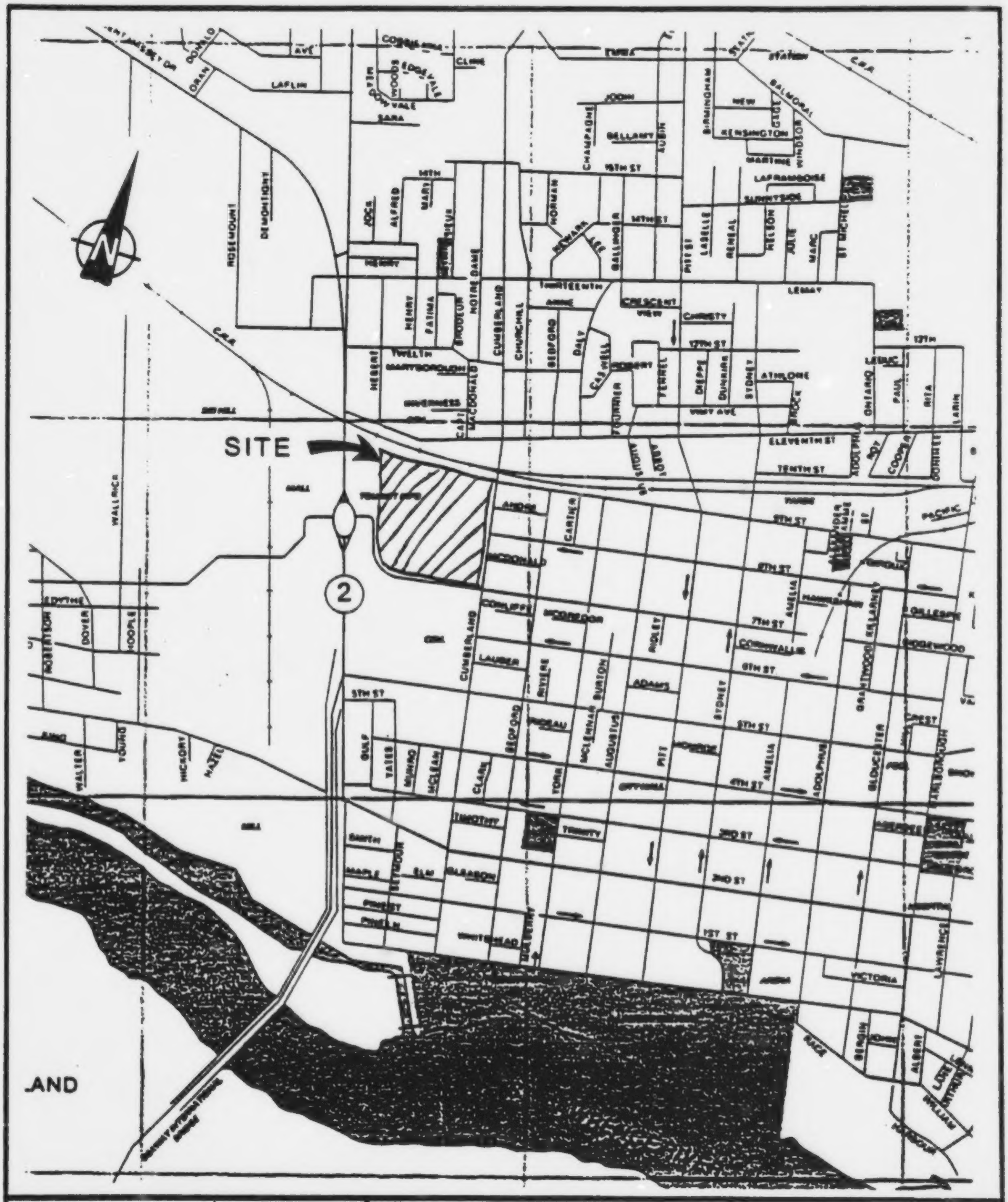
Groundwater, Proximity Unconfined aquifer (0 - 2 m depth); major aquifer in bedrock at 20 - 100 m below surface

Use Industrial

Proximity of Existing Wells Original Domtar well on-site - ongoing industrial use

Site Investigations Preliminary site investigation by INTERA in progress; Sampling of waste piles conducted by MOE in 1986

6. **Comments/Remarks:** Waste material in disposal areas in two locations; Sampling of waste material by MOE indicted presence of coal tar constituents; Domtar operation consisted of making tar impregnated cardboard pipe; On-site disposal evident


SITE
2
N
C.N.R.
.AND
LAFLIN
ROSEMOUNT
WALLRICK
CUMBERLAND
NOTRE DAME
MACDONALD
BEDFORD
SYDNEY
AMELIA
ADOLPHUS
PITT
AUGUSTUS
BURTON
McLENNAN
ELEVENTH ST
TENTH ST
9TH ST
8TH ST
7TH ST
6TH ST
5TH ST
4TH ST
2ND ST
1ST ST
CORNWALLIS
GLOUCESTER
MARLBOROUGH
ONTARIO
LEMAY
ATHLONE
RACE
VICTORIA
WHITEHEAD

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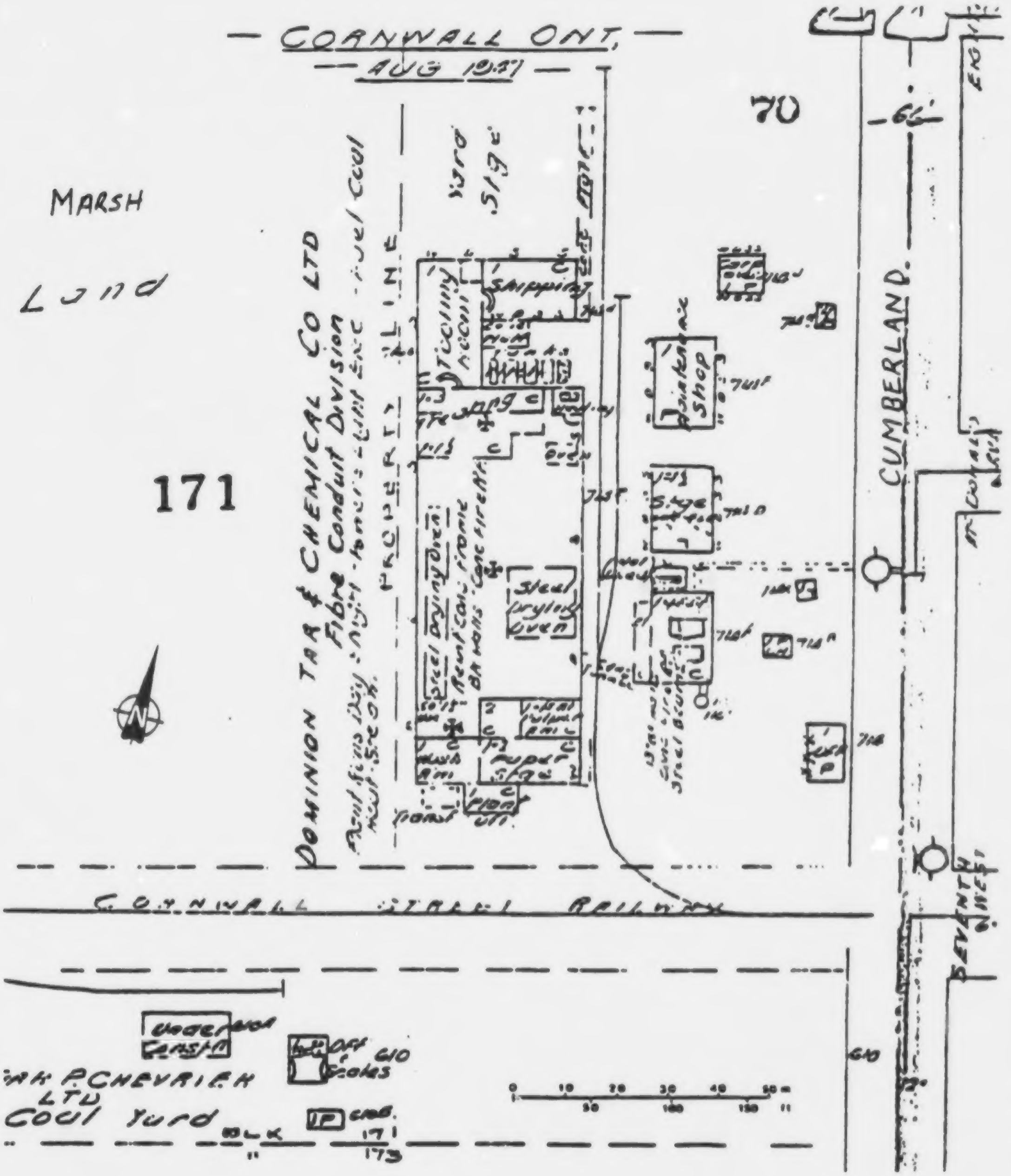
City of Cornwall, showing location of Domtar Construction Materials Ltd. site.

INTERA Technologies


CORNWALL ONT.
AUG 1937
MARSH
Land
171
70
DOMINION TAR & CHEMICAL CO LTD
Fibre Conduit Division
PROPERTY LINE
Shipping
Steel Drying Oven
Paper Stge
Blacksmith Shop
CUMBERLAND
CORNWALL STREET RAILWAY
SEVENTH ST WEST
Undergrd Constn
Off Scales
P CHEVRIER LTD
Coal Yard
171
173
610

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1947 Plan of Domtar Construction Materials Ltd. site, (Source: Fire insurance plan, Public Archives Canada, NMC-52963, sheet 22)

INTERA Technologies

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City London

Street Address 1350 Trafalgar Rd. bounded by Trafalgar, Highbury & CN railways

MOE Region Southwestern

MOE District London

NTS Map Sheet 40 I/14

Historical Maps and Photos Available 1940 fire insurance plan (Regional Collection, University of Western Ontario, sheet 60); 1972 air photo (National Air Photo Library, A23668-45)

2. **Site Identification:**

Name London Roofings Ltd.

Type of Facility Roofing felt and tarred paper products manufacturing

Operator(s) and Period(s) of Operation Canadian Roofing Ltd. (1939 - 1940); London Roofings Ltd. (1940 - 1943); Viceroy Manufacturing Co. (1943 - 1948); Bishop Asphalt Papers (1948 - 1958); Northern Roofing Co. (1958 - 1970s).

3. **Site Characteristics:**

Size (when operated) Small, less than 0.5 hectare

Present Land Use Commerical (roofing firm, garage, warehouse, etc.)

Planned Land Use Same

Present Occupant(s) Deane Roofing Co., Mays Storage and Warehouse

Present Land Use Adjoining Properties North - CR Railway and Parkland; east - commercial (Cinran Plastics); south - commercial, residential; west - commercial

Underground Utilities Storm sewer on Highbury, sanitary sewer on Trafalgar Rd.

Soil Conditions Unknown

Site Access Uncontrolled

4. **Evidence of Buried Wastes:**

Operating Period 1939 to approximately 1957, end of coal tar use (18 years)

Excavation History Unknown

Visible Wastes None reported or observed

Odour None detected

Water Pollution None reported or observed

5. **Resource Characteristics:**

Surface Water Thames River

Proximity 1.2 km

Use Recreational

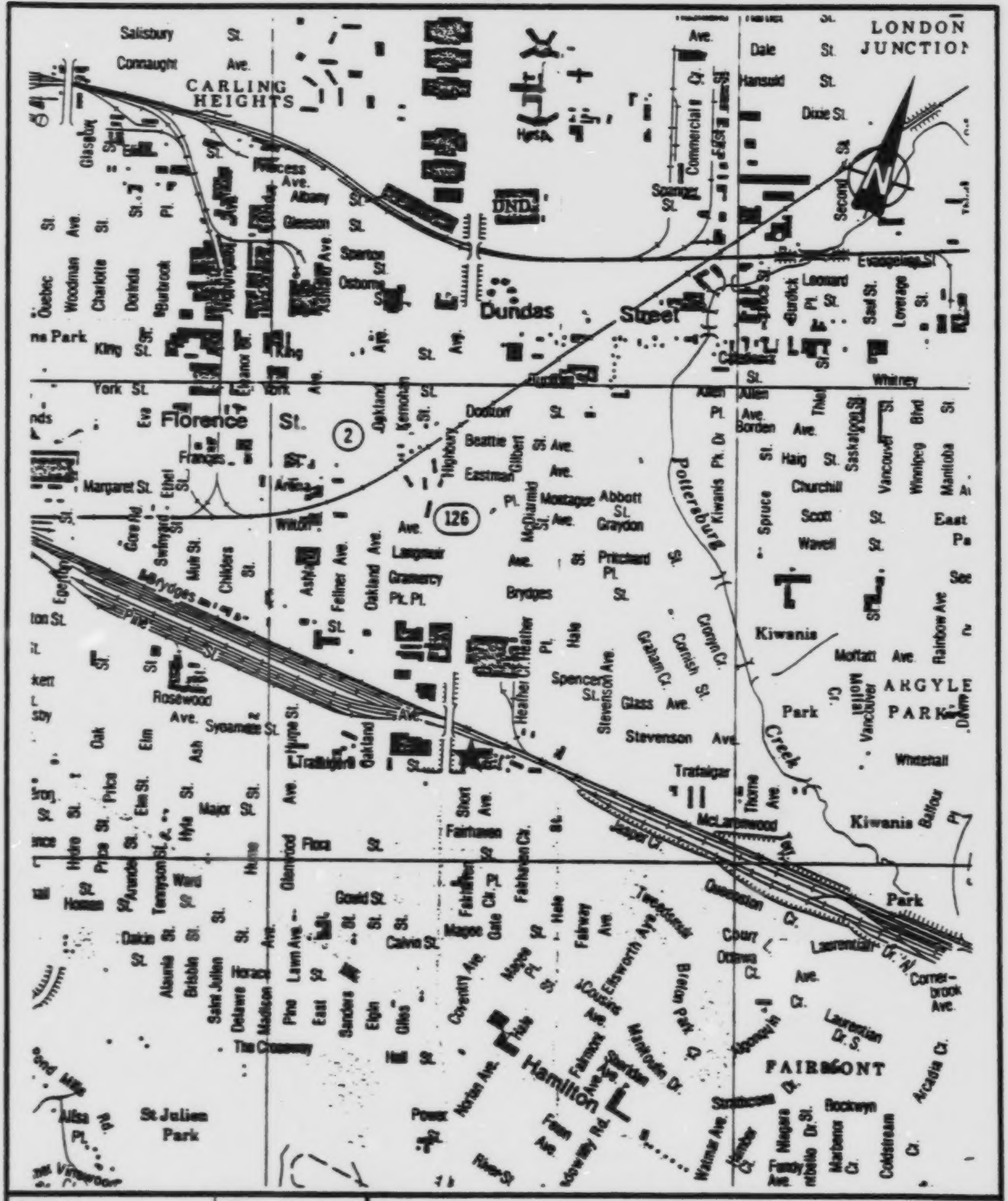
Groundwater, Proximity Unknown

Use Not used

Proximity of Existing Wells Unknown

Site Investigations Not reported

6. **Comments/Remarks:** Small site. Likely used coal tar only until mid to late 1950s, roofing contractor now occupies part of original building; Northern Roofing Co. (roofing contractor) occupied original building from 1959 - 1970s, area of former furnaces and storage tanks now parking lot; Small disposal area operated on-site adjacent to CNR tracks from about 1942 to the 1960s.


LONDON JUNCTION
CARLING HEIGHTS
DND
Dundas Street
Florence St.
2
126
Pottersburg Creek
Kiwanis Park
ARGYLE PARK
FAIRMONT
St Julien Park
Hamilton Rd.
Dundas St.
York St.
King St.
Brydges St.
Trafalgar St.
Egerton St.
Highbury Ave.

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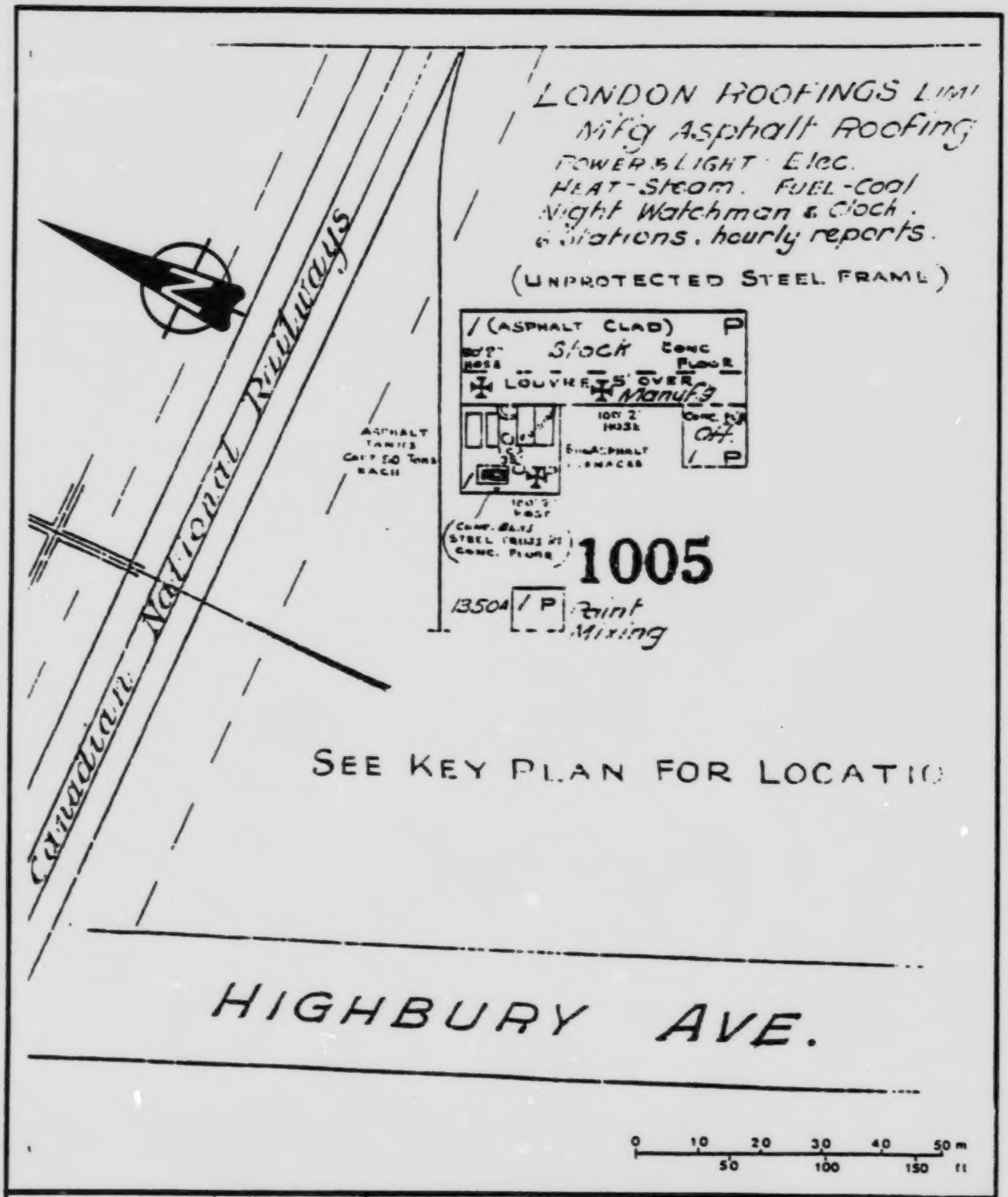
City of London, showing location of Canadian Roofings Ltd. site.

INTERA Technologies


LONDON ROOFINGS LIM
Mfg Asphalt Roofing
POWER & LIGHT - Elec.
HEAT - Steam. FUEL - Coal
Night Watchman & Clock.
6 Stations. hourly reports.
(UNPROTECTED STEEL FRAME)
(ASPHALT CLAD)
P
Stock
CONC FLOOR
LOUVRE
5' OVER
Manuf'g
Off.
P
ASPHALT TANKS
1005
1350A
P
Paint Mixing
Canadian National Railways
SEE KEY PLAN FOR LOCATIO
HIGHBURY AVE.
0 10 20 30 40 50 m
50 100 150 ft

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1940 Plan of London Roofing Ltd., (Source: Fire Insurance Map, Regional Collection, University of Western Ontario, sheet 60)

INTERA Technologies

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Toronto Street Address 297-307 Front St. E.

MOE Region Central

MOE District Toronto NTS Map Sheet 30 M/11

Historical Maps and Photos Available 1889 plan of works, Station "A" (Consumers Gas Co., Toronto); no relevant historical air photos available

2. **Site Identification:**

Name Patersons Felt Works /Paterson Manufacturing Co.

Type of Facility Roofing felt and tarred paper products manufacturing

Operator(s) and Period(s) of Operation Patersons Manufacturing Co. Ltd. (1884 - 1898)

3. **Site Characteristics:**

Size (when operated) 0.1 hectare

Present Land Use Public/institutional (Toronto Public Library)

Planned Land Use Same as present

Present Occupant(s) Toronto Public Library - Administration/Service Centre constructed 1986/87

Present Land Use Adjoining Properties North - commercial (vacant building); east - commercial (car dealer); south - commercial (parking lot); west - commercial (gas station)

Underground Utilities Storm and sanitary sewers, gas and watermain on Front St. E. and Parliament St.

Soil Conditions Fill overlying thick sequence of clay and sand

Site Access Uncontrolled

4. **Evidence of Buried Wastes:**

Operating Period 1884 - 1898 (14 years)

Excavation History Excavation for Metro Toronto Library (1986) encountered tars, pipelines, tanks, etc.

Visible Wastes Coal tar contamination discovered during excavation and subsequent investigations for Toronto Library site

Odour None now observed or reported

Water Pollution None now observed or reported

5. **Resource Characteristics:**

Surface Water Lake Ontario

Proximity 700 m south

Use Recreational/industrial

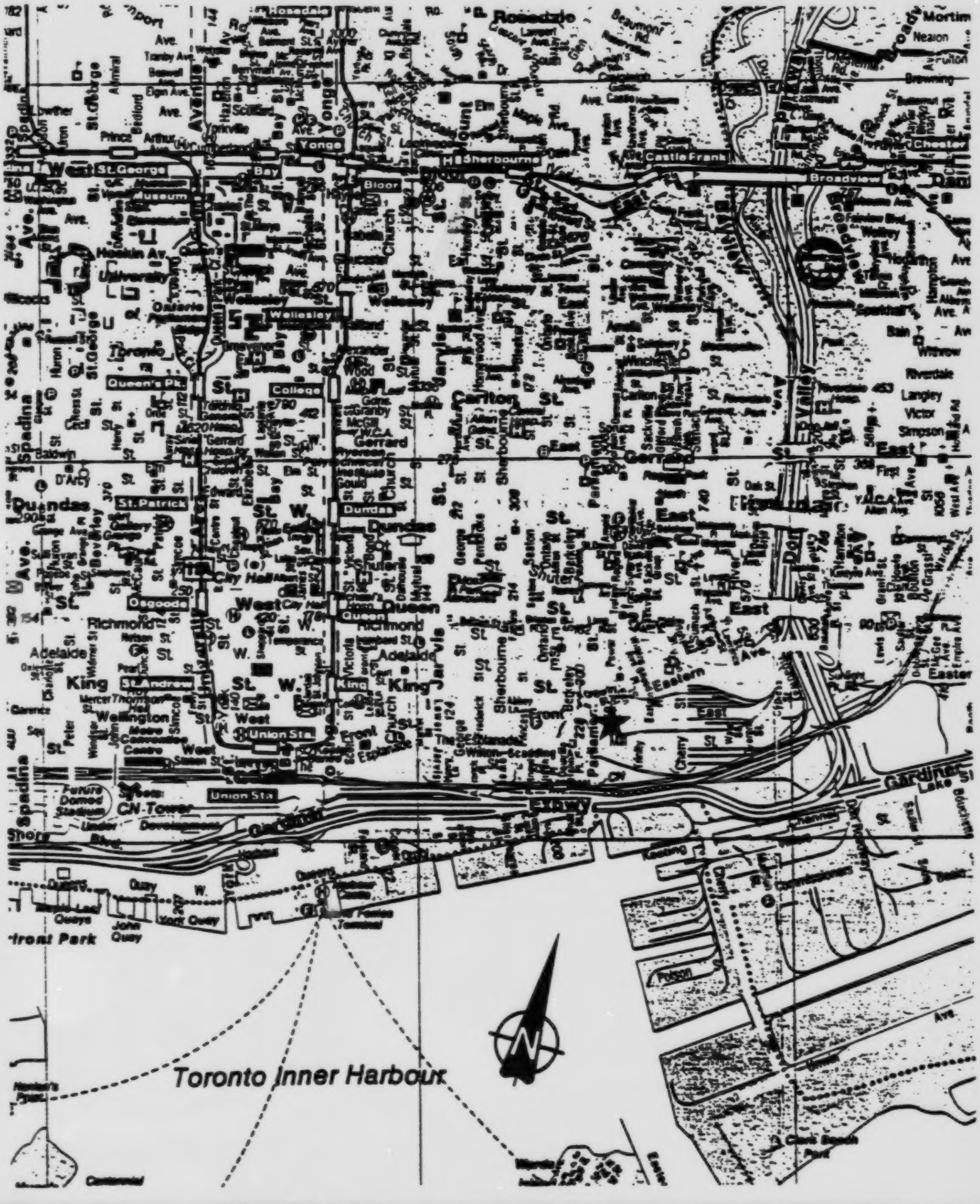
Groundwater, Proximity Less than 2.5 m below ground surface

Use None

Proximity of Existing Wells None reported in area

Site Investigations Boreholes for Toronto Harbour Commission; Toronto Library site investigations (Trow, 1986, 1987).

6. **Comments/Remarks:** This plant operated adjacent to the Consumers Gas Co. Station "A" manufactured gas plant, expansion of the Station "A" plant about 1900 occupied the site with gas holders and Patersons moved to the Berkeley St. site; This site became part of the Station "A" site which was described in the INTERA (1987) report.


Rosedale
Spadina
St. George
Avenue
Yonge
Bay
Bloor
Sherbourne
Castle Frank
Broadview
Chester
Museum
University
Wellesley
Queen's Pk.
College
Carlton St.
Gerrard
Dundas
St. Patrick
City Hall
Osgoode
Queen
Richmond
Adelaide
King
St. Andrew
Wellington
Front
Union Sta.
CN Tower
Gardiner
Expwy
Lake Shore Blvd.
Jarvis
Church
Parliament
Eastern Ave.
Don Valley Pkwy
Riverdale
Queens Quay
York Quay
John Quay
Toronto Inner Harbour
Centennial
N

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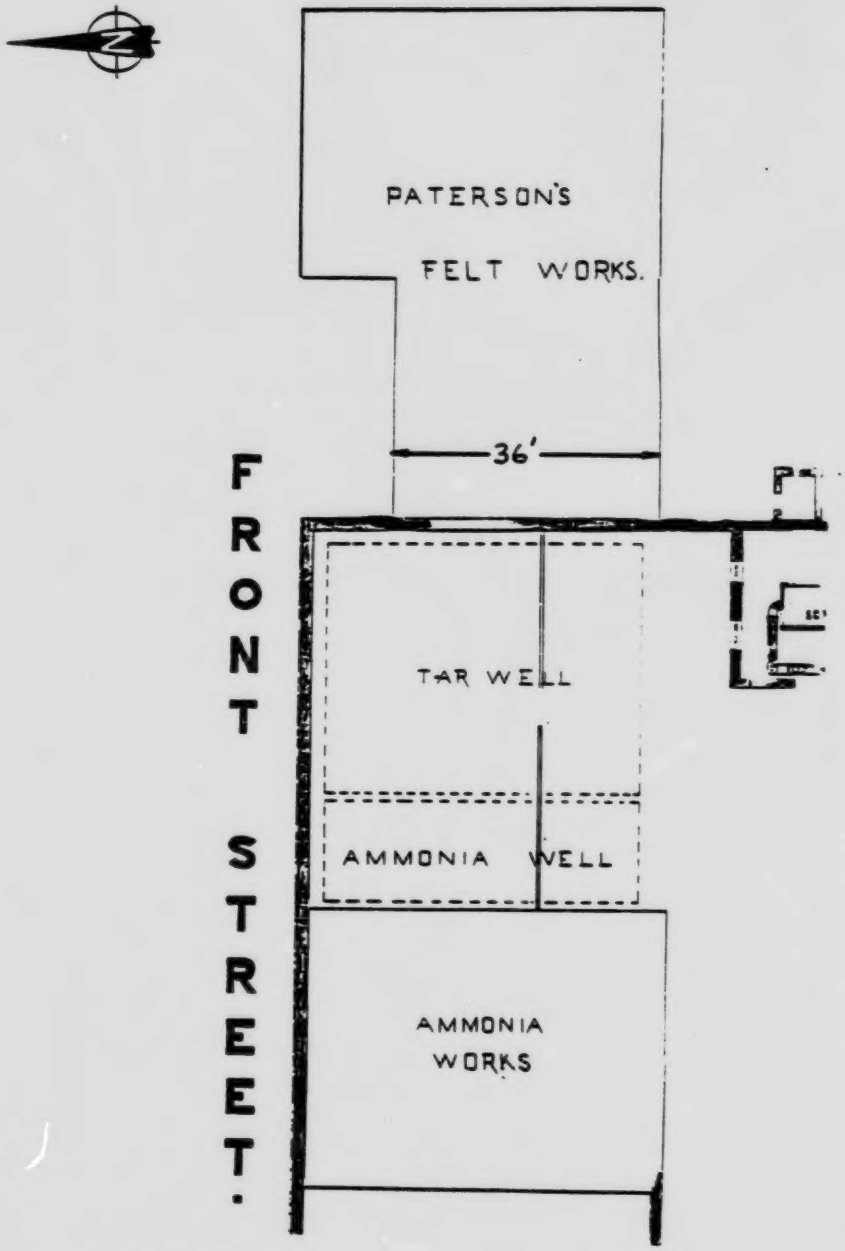
City of Toronto, showing location of Paterson Manufacturing Co. site.

INTERA Technologies


N
PATERSON'S
FELT WORKS.
36'
FRONT STREET.
TAR WELL
AMMONIA WELL
AMMONIA WORKS

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1889 Plan of Paterson Manufacturing Co. site, (Source: Plan of Works, Station "A", Consumers Gas Co., Toronto)

INTERA Technologies

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Toronto Street Address 15 Oxford Drive

MOE Region Central

MOE District Toronto NTS Map Sheet 30 M/11

Historical Maps and Photos Available 1923 fire insurance plan (Metropolitan Toronto Library - NMC 32968, sheet 61); 1930 fire insurance plan (Metropolitan Toronto Library - NMC 13995, sheet 61); 1940 fire insurance plan (Public Archives Canada NMC 9945, sheet 1367); 1950 air photo (NAPL A12499-51)

2. **Site Identification:**

Name Toronto Asphalt Roofing Manufacturing Co.

Type of Facility Roofing felt and tarred paper products manufacturing

Operator(s) and Period(s) of Operation Toronto Asphalt Roofing Mfg. Co. (1922 - 1948), Canadian Gypsum Co. Ltd. (1948 - 1978)

3. **Site Characteristics:**

Size (when operated) 0.6 hectare

Present Land Use Residential - high rise apartment

Planned Land Use Same as present

Present Occupant(s) Sanchester Place (high rise apartment building)

Present Land Use Adjoining Properties North - CN rail line; east - residential and playground; south - residential; west - residential

Underground Utilities Storm and sanitary sewers on Oxford Drive

Soil Conditions Unknown

Site Access Uncontrolled

4. **Evidence of Buried Wastes:**

Operating Period 1922 - 1950 (28 years) (approx. period when coal tar likely in use) operated later to 1978 with petroleum-based asphalt

Excavation History Excavation in 1981/82 for construction of high-rise building, no wastes reported

Visible Wastes None observed or reported

Odour None observed or reported, no odour of tar in building storm sumps

Water Pollution None observed or reported, building storm sumps inspected, no tar evident

5. **Resource Characteristics:**

Surface Water Black Creek

Proximity 400 m to east

Use Recreational

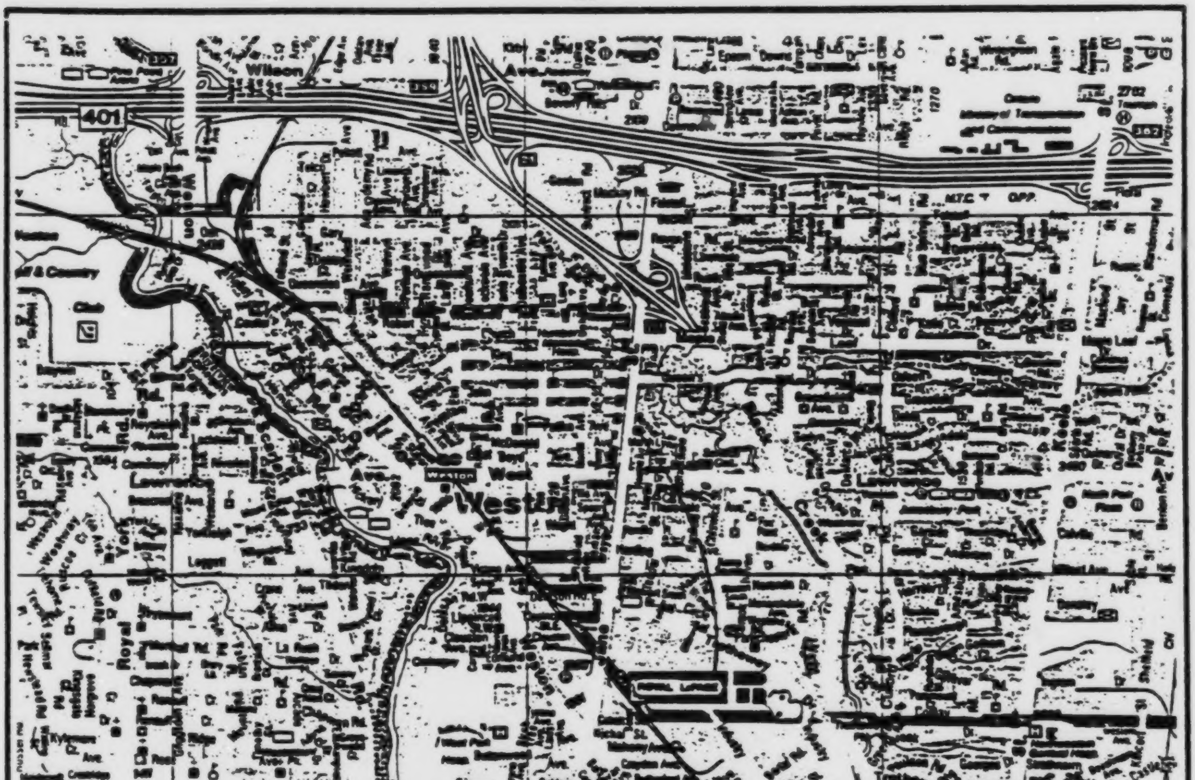
Groundwater, Proximity Unknown

Use None

Proximity of Existing Wells None reported in area

Site Investigations Site investigations for construction of Sanchester Place apartment building (1981/82)

6. **Comments/Remarks:** Fire insurance plans show melting stills and felt storage areas; coal tar likely not in use after about 1950, although some coal tar reportedly stored on-site in early 1960s.


401
Wilson Ave.
Weston
West
Lawrence
Eglinton

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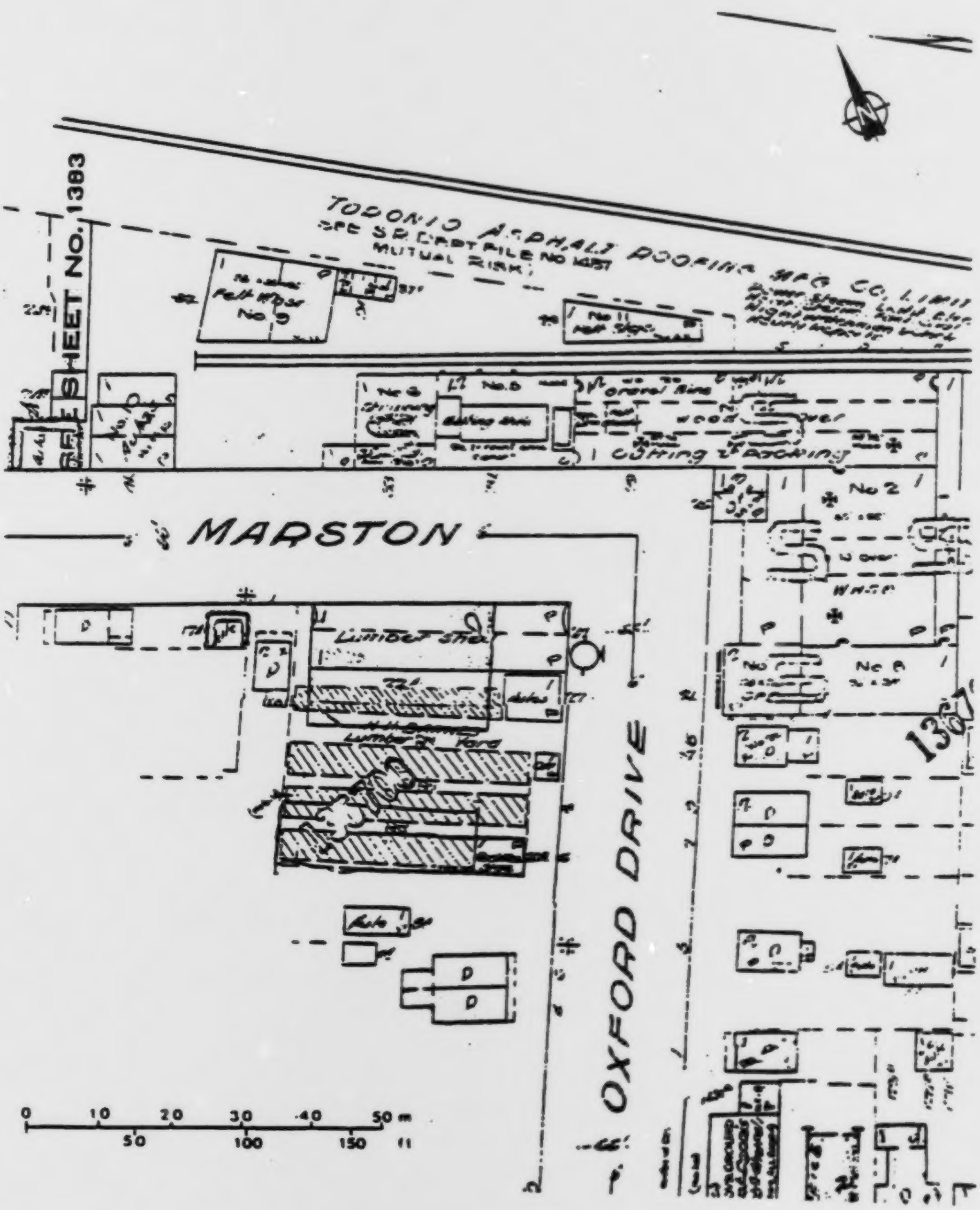
City of Toronto, showing location of Toronto Asphalt Roofing Manufacturing Co. site.

INTERA Technologies


TORONTO ASPHALT ROOFING MFG. CO. LIMITED
SEE SP. DEPT FILE NO 14257
MUTUAL RISK
SEE SHEET NO. 1383
Felt Mfr No 9
No 11 Felt Stge
No 6
No 5
Cutting & Roofing
No 2
No 8
MARSTON
Lumber Shed
Lumber & Yard
OXFORD DRIVE
Auto
D
1367
0 10 20 30 40 50 m
50 100 150 ft

| | | |
|---|---|---|
| Drawn by | Date | 1940 Plan of Toronto Asphalt Roofing site, (Source: Fire insurance plan, Public Archives Canada, NMC-9945, sheet 1367) |
| Checked by | Date | |
| Revisions | Date | |
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| INTERA Technologies | | |

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Windsor

Street Address 124 Walker Rd. (now 866 Walker) southeast corner of Walker and Edna Sts.

MOE Region Southwestern

MOE District Windsor

NTS Map Sheet 40 J/6

Historical Maps and Photos Available 1917 fire insurance plan (Regional Collection, University of Western Ontario, sheet 14); 1950 air photo (NAPL A12504-103)

2. **Site Identification:**

Name Acme Roofing Co.

Type of Facility Roofing felt and tarred paper products manufacturer

Operator(s) and Period(s) of Operation Acme Roofing Co. (1917 - 1923); listed as owned by T. Eaton Co. Ltd. in 1921

3. **Site Characteristics:**

Size (when operated) 0.5 hectare

Present Land Use Commercial

Planned Land Use Same as present

Present Occupant(s) Border Press Inc., A&G Glass Co. Ltd., Trican Electric, Industrial Electric, Ecolad Corp., RT Duplicating

Present Land Use Adjoining Properties North - vacant, commercial; east - commercial; west - commercial; south - commercial

Underground Utilities Sewers and watermain along Walker Rd. & Edna St.

Soil Conditions Unknown

Site Access Uncontrolled

4. **Evidence of Buried Wastes:**

Operating Period 1917 - 1923 (6 years)

Excavation History None reported (no basements in buildings)

Visible Wastes None reported or observed

Odour None reported or observed

Water Pollution None reported or observed

5. **Resource Characteristics:**

Surface Water Detroit River

Proximity 800 m

Use Recreational/industrial

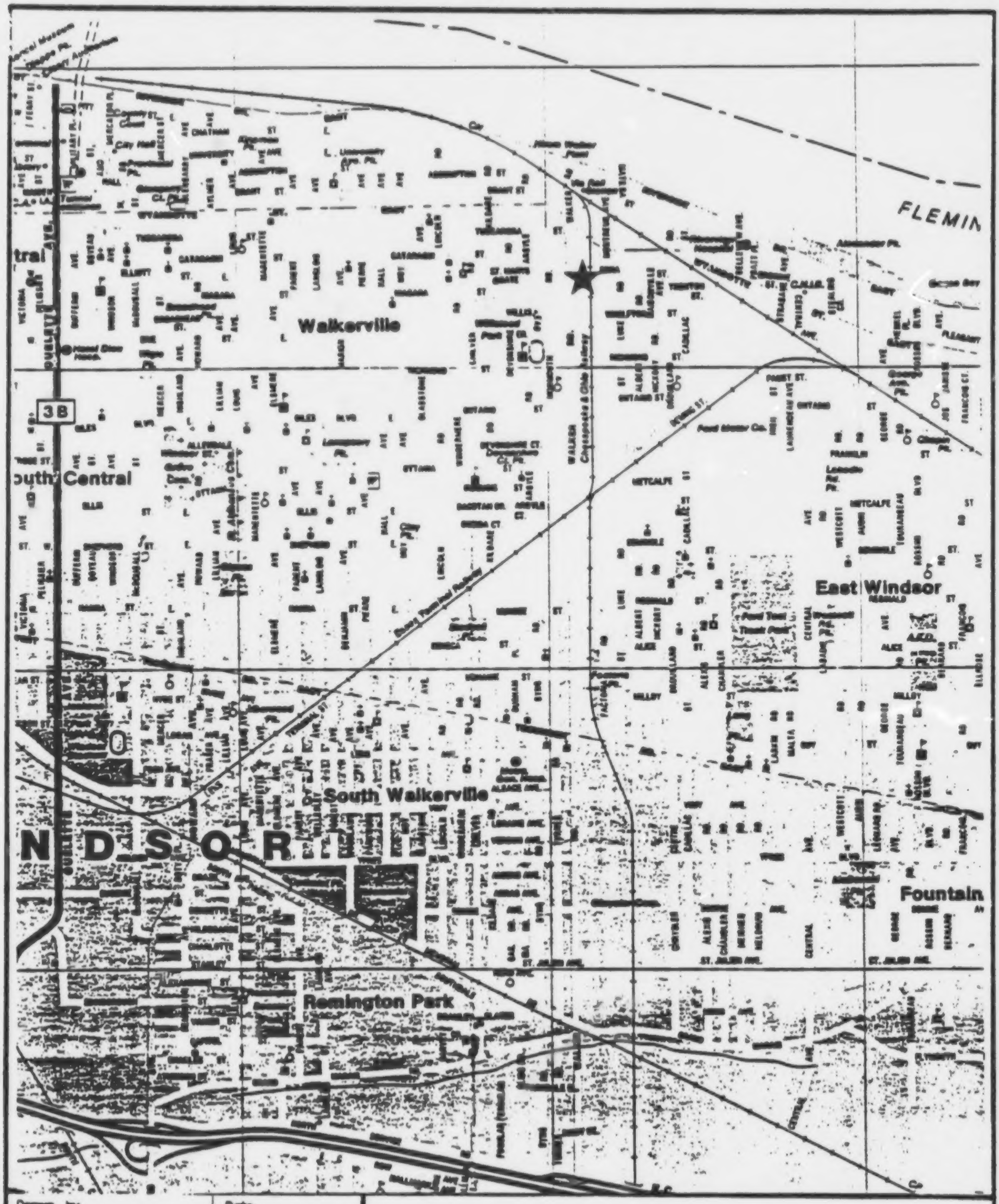
Groundwater, Proximity Unknown

Use Not used

Proximity of Existing Wells Unknown

Site Investigations None reported

6. **Comments/Remarks:** Original building on-site, extension to original building at east end, area of still house (now Border Press electrical room) inspected, no odours, no visible wastes


FLEMIN
Walkerville
South Central
East Windsor
South Walkerville
NDSOR
Fountain
Remington Park
3B

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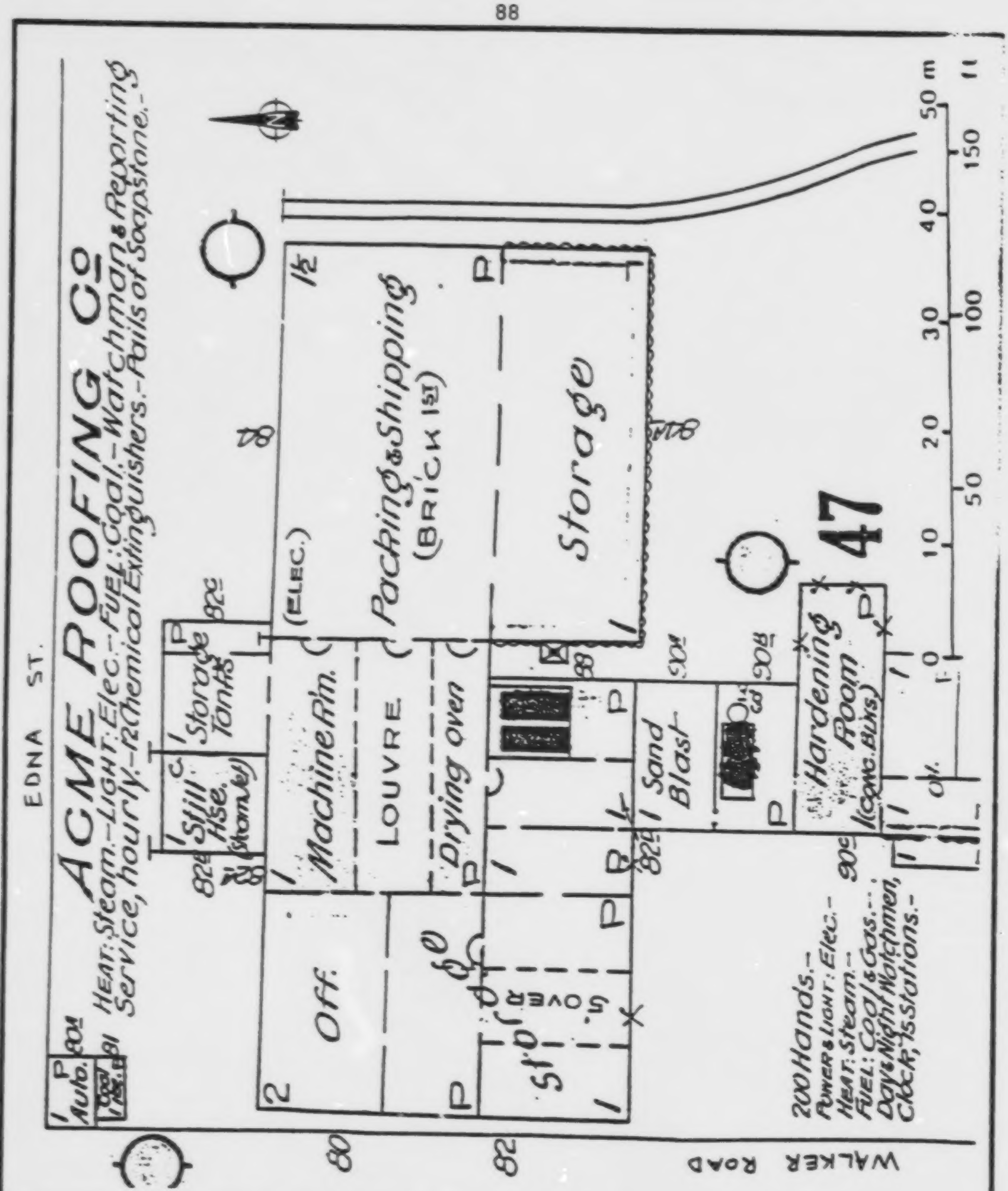
City of Windsor, showing location of Acme Roofing Co. site.

INTERA Technologies


EDNA ST.
ACME ROOFING Co
HEAT: Steam.- LIGHT: Elec.- FUEL: Coal.- Watchman & Reporting Service, hourly.- 12 Chemical Extinguishers.- Pails of Soapstone.- 3
1 P Auto.
Still Hse. (Steam Jet)
Storage Tanks
Machine Rm.
LOUVRE
Drying oven
(ELEC.)
Packing & Shipping (BRICK 1ST)
Storage
Off.
Sand Blast
Hardening Room (CONC. BLKS)
47
200 Hands.- Power & Light: Elec.- Heat: Steam.- Fuel: Coal & Gas.- Day & Night Watchmen, Clock, 15 Stations.-
80
82
WALKER ROAD
0 10 20 30 40 50 m
50 100 150

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1917 Plan of Acme Roofing Co., (Source: Fire insurance plan, Regional Collection, University of Western Ontario, sheet 14)

INTERA Technologies

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Windsor

Street Address Southwest corner of McDougall and Shephard Sts.

MOE Region Southwestern

MOE District Windsor

NTS Map Sheet 40 J/6

Historical Maps and Photos Available 1917 revision of 1913 fire insurance plan (Regional Collection, University of Western Ontario, sheet 33); 1950 air photo (NAPL A12583-26)

2. **Site Identification:**

Name Canadian Roofing Manufacturing Co. Ltd.

Type of Facility Roofing felt and tarred paper products manufacturing

Operator(s) and Period(s) of Operation Canadian Roofing Manufacturing Co. Ltd. (1914 - 1924)

3. **Site Characteristics:**

Size (when operated) 0.9 hectare

Present Land Use Commercial (Windsor Cable Communications and Campbell - Lincoln Mercury Body Shop)

Planned Land Use Same as present

Present Occupant(s) Windsor Cable Communications and Campbell Lincoln Mercury Body Shop

Present Land Use Adjoining Properties North - commercial/industrial; east - industrial; south - industrial; west - industrial

Underground Utilities Storm and sanitary sewers on streets

Soil Conditions Unknown

Site Access Part uncontrolled and part controlled

4. **Evidence of Buried Wastes:**

Operating Period 1914 - 1924 (10 years)

Excavation History Unknown; all buildings are constructed on grade without basements

Visible Wastes None reported or observed

Odour None reported or observed

Water Pollution None reported or observed

5. **Resource Characteristics:**

Surface Water Detroit River

Proximity 2.5 km north

Use Recreational/industrial, water supply downstream

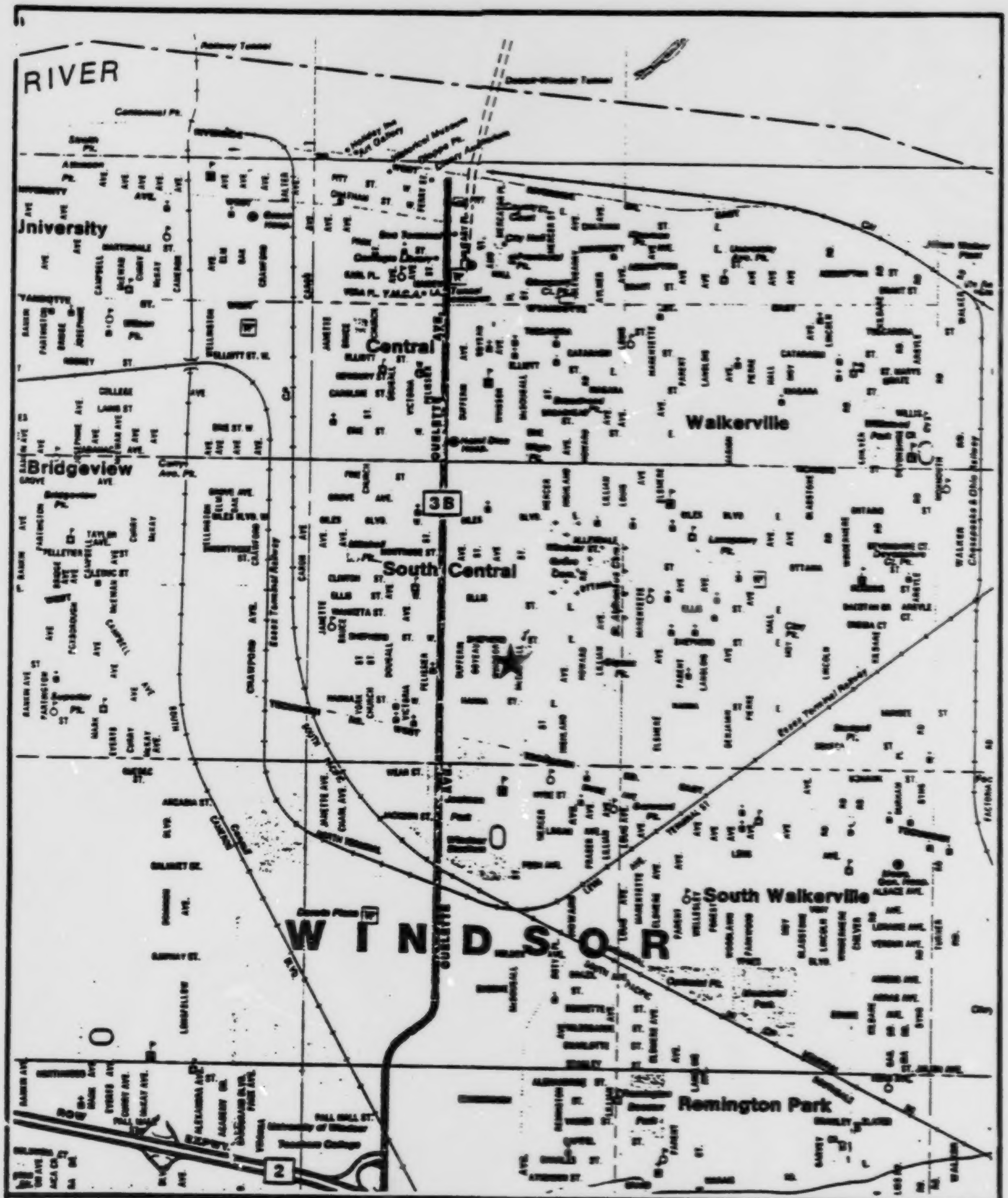
Groundwater, Proximity Unknown

Use Not used

Proximity of Existing Wells Unknown

Site Investigations None reported

6. **Comments/Remarks:** Storage tank area shown on 1917 fire insurance plan is now concrete and asphalt covered


RIVER
University
Central
Walkerville
Bridgeview
South Central
South Walkerville
WINDSOR
Remington Park
3B
2

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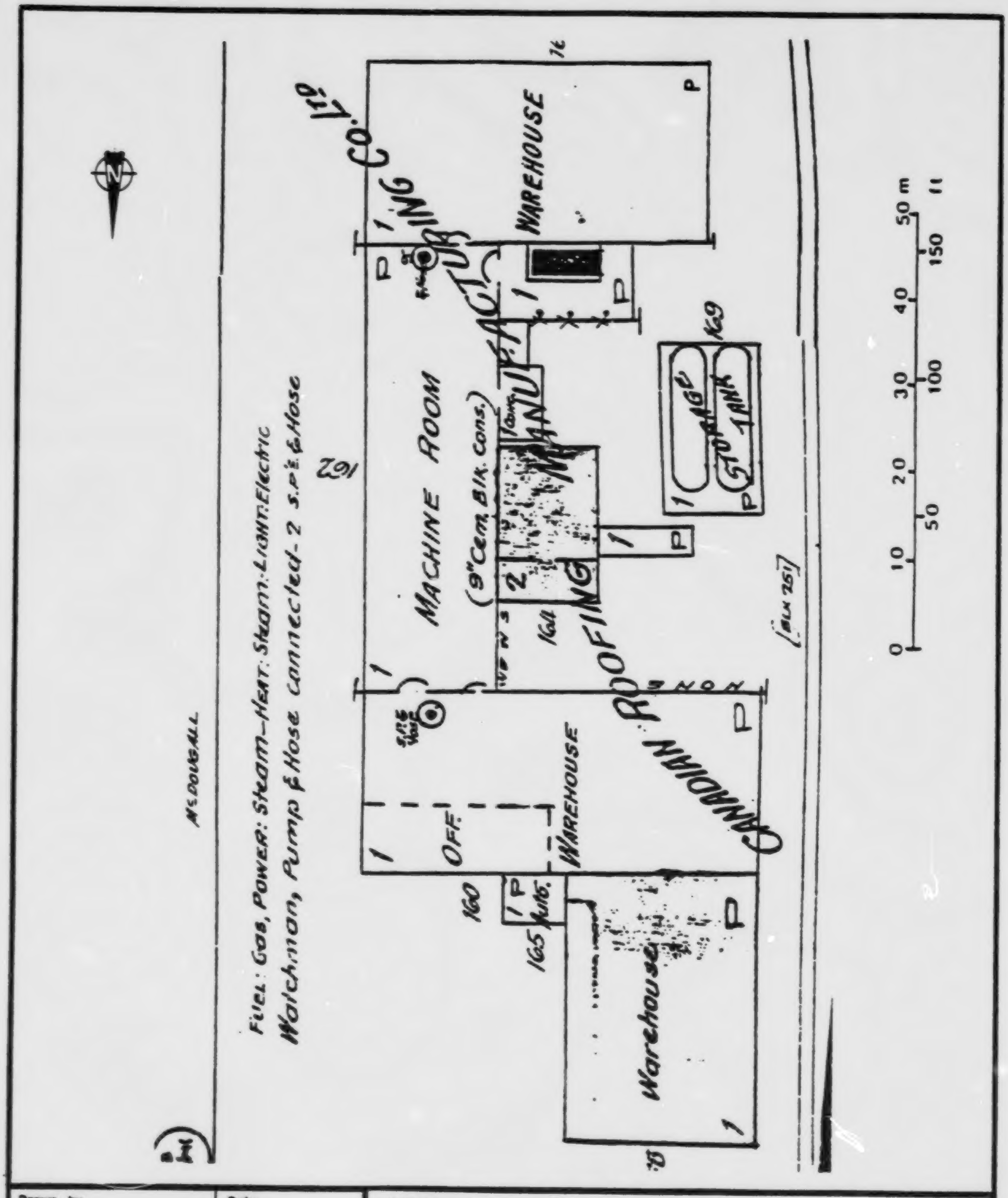
City of Windsor, showing location of Canadian Roofing Manufacturing Co. Ltd site.

INTERA Technologies


McDOUGALL
FUEL: Gas, POWER: Steam-Heat: Steam: Light: Electric
Watchman, Pump & Hose Connected - 2 S.P's & Hose
162
MACHINE ROOM
(9" Cem. Blk. Cons.)
164
WAREHOUSE
CANADIAN ROOFING MANUFACTURING CO. LTD
OFF.
WAREHOUSE
Warehouse
160
165
Auto.
STORAGE TANK
169
[BLK 251]
0
10
20
30
40
50 m
50
100
150 ft

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1917 Plan of Canadian Roofing Manufacturing Co. Ltd., (Source: 1917 revision of 1913 fire insurance plan, Regional Collection, University of Western Ontario, sheet 33)

INTERA Technologies

# BY-PRODUCT CHARCOAL AND COKE OVEN PLANTS OF THE IRON AND STEEL INDUSTRY

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Hamilton

Street Address Industrial Dr. and Ottawa St. Hamilton

MOE Region West Central

MOE District Hamilton

NTS Map Sheet

Historical Maps and Photos Available 1960 fire insurance plan (Public Archives Canada, NMC sheet 303-36); 1987 oblique air photo (Dofasco)

2. **Site Identification:**

Name Dofasco Inc.

Type of Facility Coke Oven By-Product Plant

Operator(s) and Period(s) of Operation Dominion Foundries and Steel Ltd. (1951 - present)

3. **Site Characteristics:**

Size (when operated) Coke oven and by-product plan approx. 6 hectare

Present Land Use Industrial (Dofasco Steel Mill and Ovens)

Planned Land Use Same

Present Occupant(s) Dofasco

Present Land Use Adjoining Properties North - Hamilton Harbour; east, south, west - industrial

Underground Utilities Likely numerous pipelines joining buildings

Soil Conditions Unknown

Site Access Limited controlled access

4. **Evidence of Buried Wastes:**

Operating Period 1951 - present (37 years)

Excavation History Not reported

Visible Wastes Active site

Odour Active site

Water Pollution Active site

5. **Resource Characteristics:**

Surface Water Hamilton Harbour

Proximity 500 m north

Use Industrial

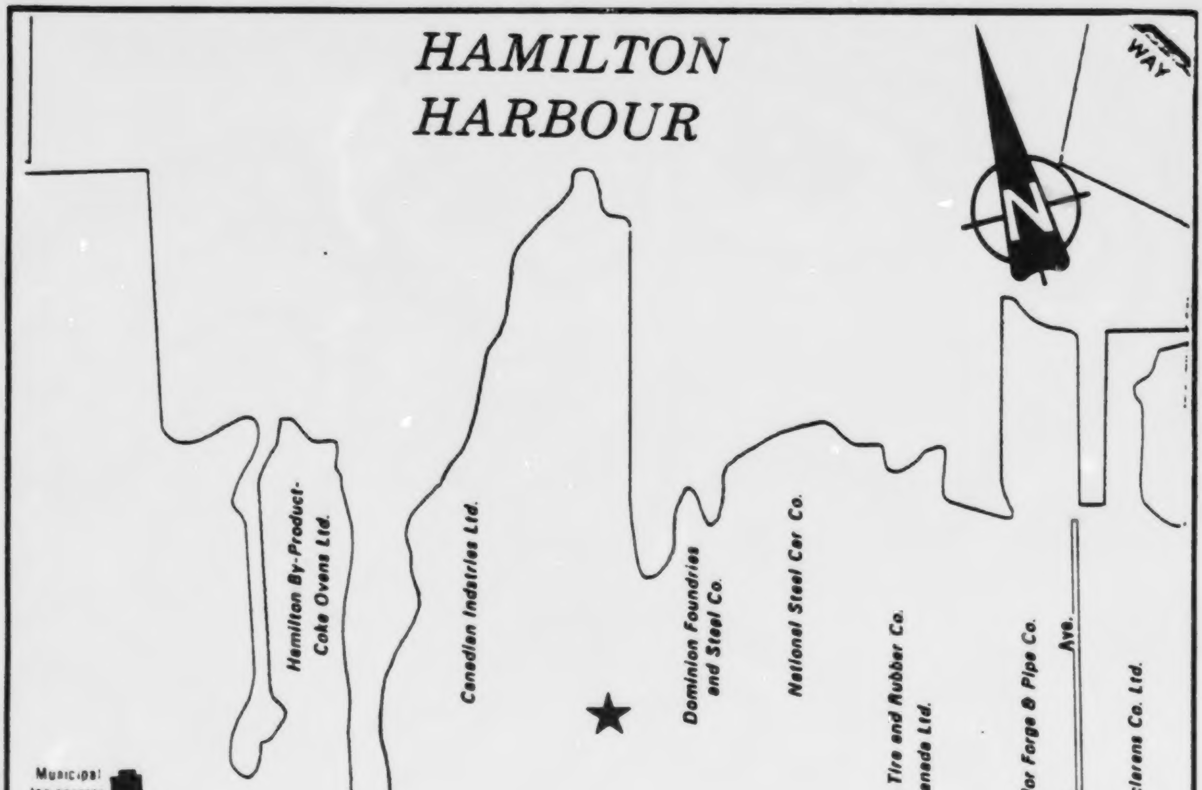
Groundwater, Proximity Unknown

Use Likely not used

Proximity of Existing Wells None in impacted area

Site Investigations Dofasco has provided a good summary of tar handling practices

6. **Comments/Remarks:** Tar sent to Domtar (Toronto until 1960 and Hamilton from 1958 to present). Tar sludge mixed with coal and reused as fuel. This site is still active.


HAMILTON HARBOUR
WAY
N
Hamilton By-Product-Coke Ovens Ltd.
Canadian Industries Ltd.
Dominion Foundries and Steel Co.
National Steel Car Co.
Firestone Tire and Rubber Co. of Canada Ltd.
Taylor Forge & Pipe Co.
Mclerens Co. Ltd.
Strathearn Ave.
Municipal Incinerator
Industrial Dr.
Manchester St.
Plymouth St.
Proctor & Gamble Co. Ltd.
BURLINGTON ST.
BURL
Power Stat
Canadian Westinghouse Co. Ltd.
Sewage Pumping Sta.
Ottawa St.
Stapleton Ave.
Roosevelt Av.
Beatty Ave.
Conrad Ave.
Dominion Rd.
Gertrude St.
Northcote St.
George Sch.
Beach Rd.
Wallace Ave.
Hampton Ave.
Bayfield Ave.
Holly Ave.
Grenfell St.
Mortimer Av.
McAnulty Blvd.
Dalhousie Ave.
Dalkeith Ave.
Craigmiller Ave.
Cluny Ave.
Woodleigh
Agincourt Ave.
Christopher's Plgd.
Greater Hamilton Shopping Centre
Dunbar Ave.
Murchison Ave.
Vansittart St.
Harrison Ave.
Division St.
Cope St.
Tragina Ave.
Weir St.
Fairfield Ave.
Fairfield Sch.
Pelino Ave.
BARTO
Albemarle St.
Lyndhurst St.
Rowanwood St.
Depew St.
Moss Ave.
Linden St.
Gordon St.
Lincoln St.
Avondale St.
AVE.
ST.
Argyle Ave.
Newlands Ave.

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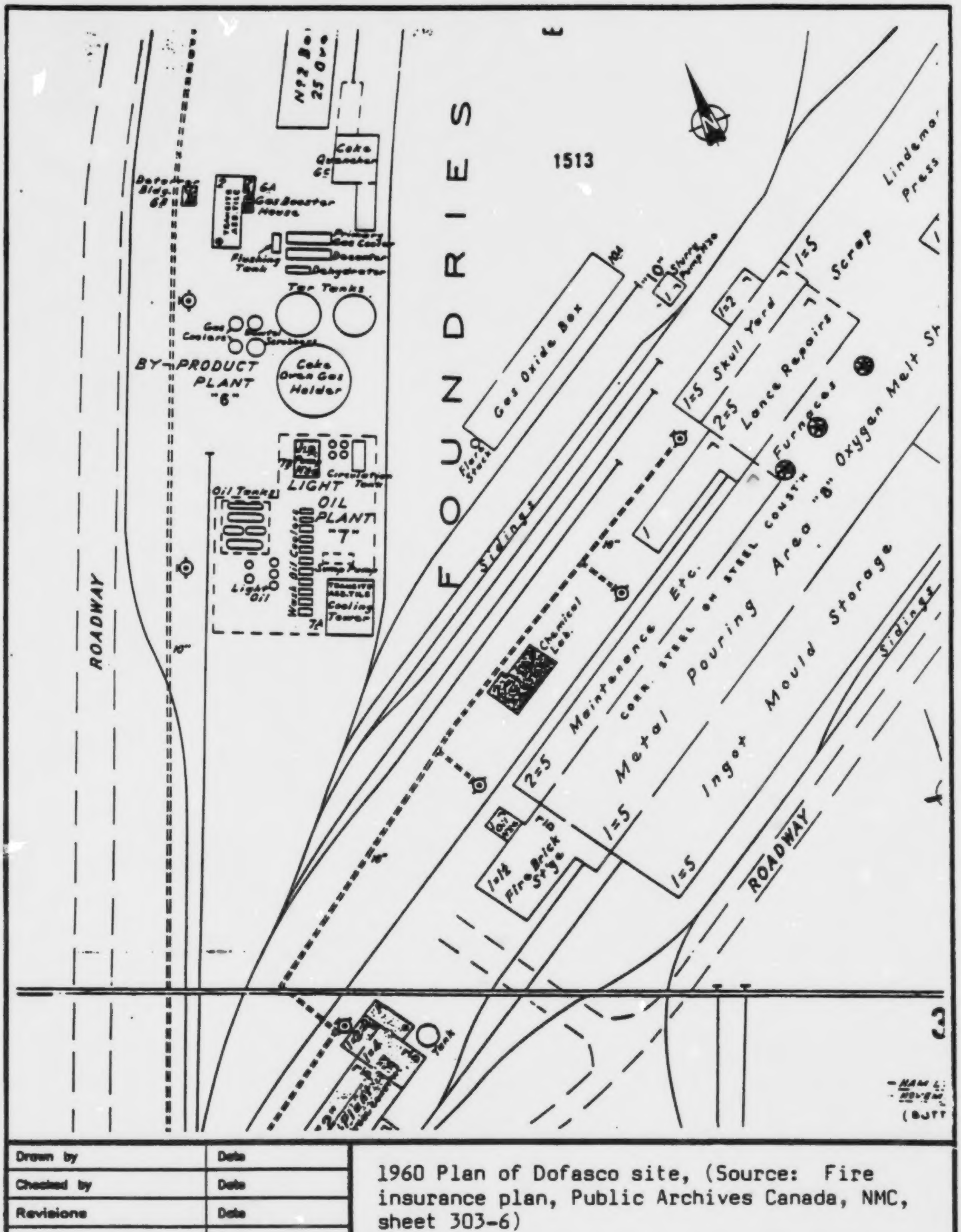
City of Hamilton, showing location of Dofasco site.

INTERA Technologies


FOUNDRIES
1513
ROADWAY
BY-PRODUCT PLANT "6"
Coke Oven Gas Holder
Tar Tanks
Gas Booster House
Primary Gas Cooler
Decanter
Dehydrator
Flushing Tank
Coke Quencher
LIGHT OIL PLANT "7"
Oil Tanks
Light Oil
Wash Oil Coolers
Circulation Tank
Cooling Tower
Gas Oxide Box
Sidings
Chemical Lab.
Maintenance Etc.
Metal Pouring Area "8" Oxygen Melt St
Ingot Mould Storage
Skull Yard
Lance Repairs
Furnaces
Scrap
Fire Brick Stge
Lindeman Press
ROADWAY
Sidings
1=5
2=5

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| Drawn by | Date | 1960 Plan of Dofasco site, (Source: Fire insurance plan, Public Archives Canada, NMC, sheet 303-6) |
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| Revisions | Date | |

INTERA Technologies

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Hamilton

Street Address North of Industrial Dr. between Ottawa St. Slip and Wilcox St.

MOE Region West central

MOE District Hamilton

NTS Map Sheet 30 M/5

Historical Maps and Photos Available 1941 fire insurance plan (Regional Collection, University of Western Ontario, sheet 301); 1928 Steel Co. of Canada, Hamilton Works (Stelco); 1946 Steel Co. of Canada General Arrangement of Plant (Stelco); 1961 fire insurance plan (Public Archives Canada, NMC, sheet 208)

2. **Site Identification:**

Name Steel Company of Canada Ltd./Stelco Inc.

Type of Facility Coke oven by-product plant

Operator(s) and Period(s) of Operation Stelco Inc. (1918 - present)

3. **Site Characteristics:**

Size (when operated) 20 hectare (coke ovens and by-product plants only)

Present Land Use Industrial

Planned Land Use Same

Present Occupant(s) Stelco Inc.

Present Land Use Adjoining Properties North, west - Hamilton Harbour; east - industrial; south - industrial

Underground Utilities Likely numerous utilities between buildings

Soil Conditions Unknown

Site Access Limited and controlled access

4. **Evidence of Buried Wastes:**

Operating Period 1918 to present (70 years)

Excavation History None reported

Visible Wastes Active site

Odour Active site

Water Pollution Active site

5. **Resource Characteristics:**

Surface Water Hamilton Harbour

Proximity 200 m west and 640 m north

Use Industrial

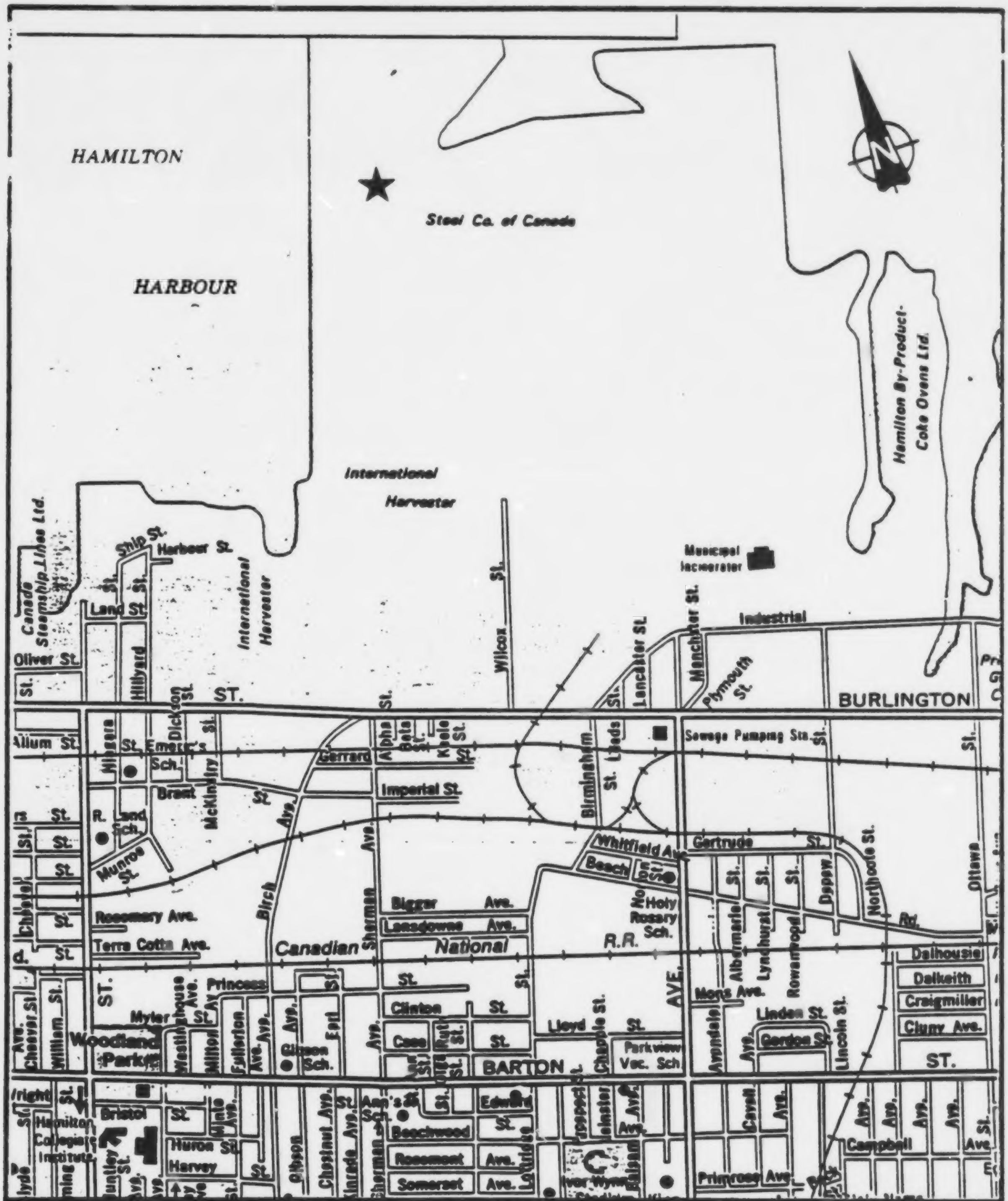
Groundwater, Proximity Unknown

Use Not used

Proximity of Existing Wells None in impacted area

Site Investigations None reported or observed

6. **Comments/Remarks:** Active site - two by-product plants. Tar sold for outside processing, some tar recycled to blast furnances. Tar sludge either sold or burned. Some sludge was historically disposed in on-site cells. Excess tar sludge and cleanout material disposed by Tricil Ltd.


HAMILTON
HARBOUR
N
Steel Co. of Canada
International Harvester
Hamilton By-Product Coke Ovens Ltd.
Municipal Incinerator
Canada Steamship Lines Ltd.
Ship St.
Harbour St.
Land St.
International Harvester
Oliver St.
Hillyard
Wilcox St.
Lancaster St.
Manchester St.
Industrial
Plymouth St.
BURLINGTON ST.
Sewage Pumping Sta.
St. Emeric's Sch.
Gerrard
Imperial St.
Birmingham
Leeds
Whitfield Ave.
Gertrude St.
Beach
Holy Rosary Sch.
Northcote St.
Ottawa
Birch Ave.
Sherman Ave.
Bigger Ave.
Lansdowne Ave.
Rosemary Ave.
Terra Cotta Ave.
Munroe St.
Canadian National R.R.
Dalhousie
Dalkeith
Craigmiller
Cluny Ave.
Princess
Myler
Woodland Park
Gibson Sch.
Clinton St.
Case St.
Lloyd St.
Parkview Voc. Sch.
Mons Ave.
Linden St.
Gordon St.
Lincoln St.
BARTON ST.
Bristol
Hamilton Collegiate Institute
Huron St.
Harvey
Beechwood
Rosemont Ave.
Somerset Ave.
Edward
Campbell
Primrose Ave.

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| Drawn by | Date | City of Hamilton, showing location of Stelco site. |
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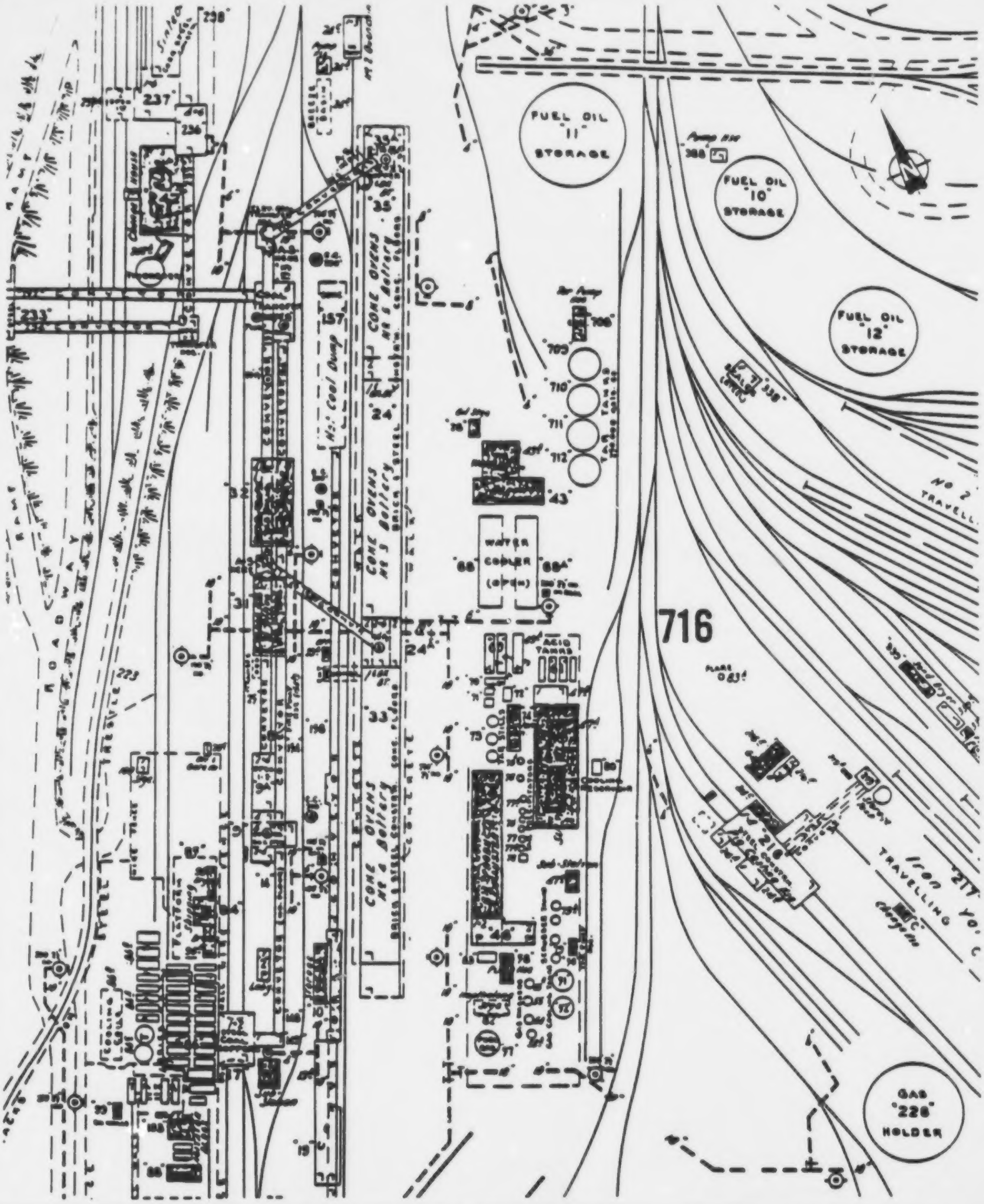
INTERA Technologies


FUEL OIL "11" STORAGE
FUEL OIL "10" STORAGE
FUEL OIL "12" STORAGE
GAS "226" HOLDER
WATER COOLER (OPEN)
68
68A
716
COKE OVENS
No: Coal Dump
157
24
35
33
43
709
710
711
712
706
338
216
217
233
236
237
238
223
TRESTLE
ROADWAY
NO 2 TRAVELL
TRAVELLING
Iron Yo

| | | |
|---|---|---|
| Drawn by | Date | 1961 Plan of Hamilton Stelco site, Coke ovens area, (Source: Fire Insurance Map, Public Archives Canada, NMC-440, sheet 208) |
| Checked by | Date | |
| Revisions | Date | |

INTERA Technologies

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Nanticoke

Street Address Regional Rd. No. 3 and Lake Erie

MOE Region West Central

MOE District Hamilton

NTS Map Sheet 40 I/16

Historical Maps and Photos Available 1985 Lake Erie Works Layout (Stelco Dwg. No. 300099); 1985 General Layout - By-product and Coke Oven Plant (Stelco Dwg. No. 315769); 1980 air photo (NAPL A25546-26)

2. **Site Identification:**

Name Stelco Lake Erie Works

Type of Facility Coke oven by-product plant

Operator(s) and Period(s) of Operation Stelco Co. of Canada Ltd. (1981 - present)

3. **Site Characteristics:**

Size (when operated) Coke oven and by-product area - 10 hectare

Present Land Use Active steel works

Planned Land Use Same as present

Present Occupant(s) Steel Co. of Canada Ltd.

Present Land Use Adjoining Properties North, east & west - rural residential; south - Lake Erie

Underground Utilities Unknown

Soil Conditions Unknown

Site Access Controlled access - fenced

4. **Evidence of Buried Wastes:**

Operating Period 1981 - present (7 years)

Excavation History Unknown

Visible Wastes Active steel works - by-product area; not visited

Odour Odour associated with on-going coking and steel works operations

Water Pollution None observed

5. **Resource Characteristics:**

Surface Water Drainage ditch at southwest corner of property and Lake Erie

Proximity Lake Erie adjacent

Use Recreational/industrial

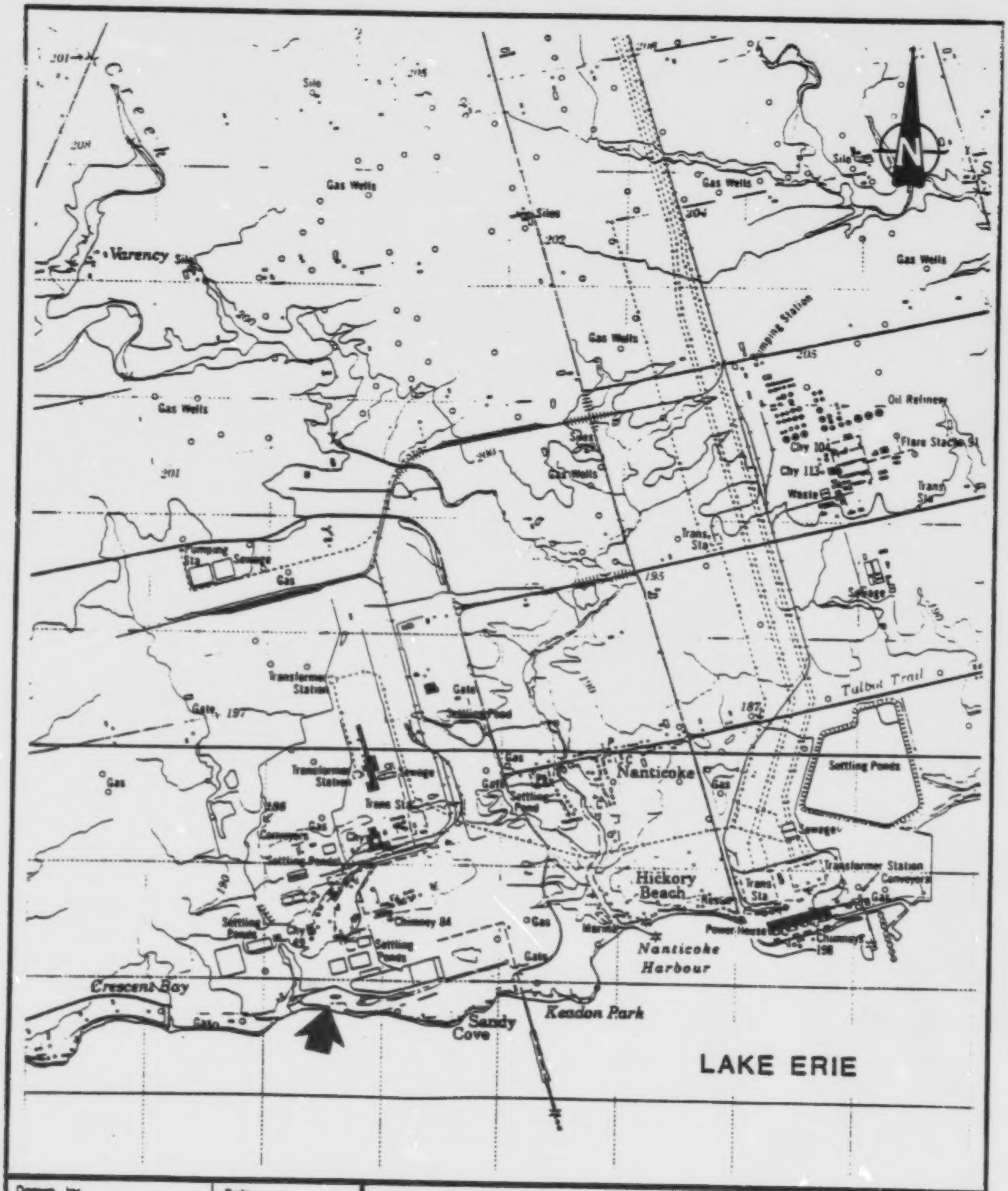
Groundwater, Proximity 2 - 3 m assumed

Use None in vicinity of plant

Proximity of Existing Wells Unknown

Site Investigations Unknown

6. **Comments/Remarks:** By-product tar sold for outside processing into saleable products, tar sludge sent to Tricil Ltd. for disposal; active steel works


Creek
201
208
Varency
Silo
205
Gas Wells
Silos
202
204
Silo
Gas Wells
Gas Wells
N
Pumping Station
205
Oil Refinery
Flare Stack
Chy 104
Chy 113
Waste
Trans Sta
Gas Wells
Silos
Gas Wells
201
Pumping Sta
Sewage
Gas
Trans. Sta
195
Sewage
Transformer Station
Gate
Settling Pond
Gate 197
Talbot Trail
187
Settling Ponds
Gas
Transformer Station
Sewage
Trans Sta
Nanticoke
Gas
Settling Pond
Gas
Conveyors
Settling Ponds
Settling Ponds
Chy 42
Chimney 84
Settling Ponds
Gas
Gas
Hickory Beach
Resort
Marina
Nanticoke Harbour
Power House
Trans Sta
Transformer Station
Conveyors
Gas
Chimneys 198
Crescent Bay
Gas
Sandy Cove
Kendon Park
LAKE ERIE

| | |
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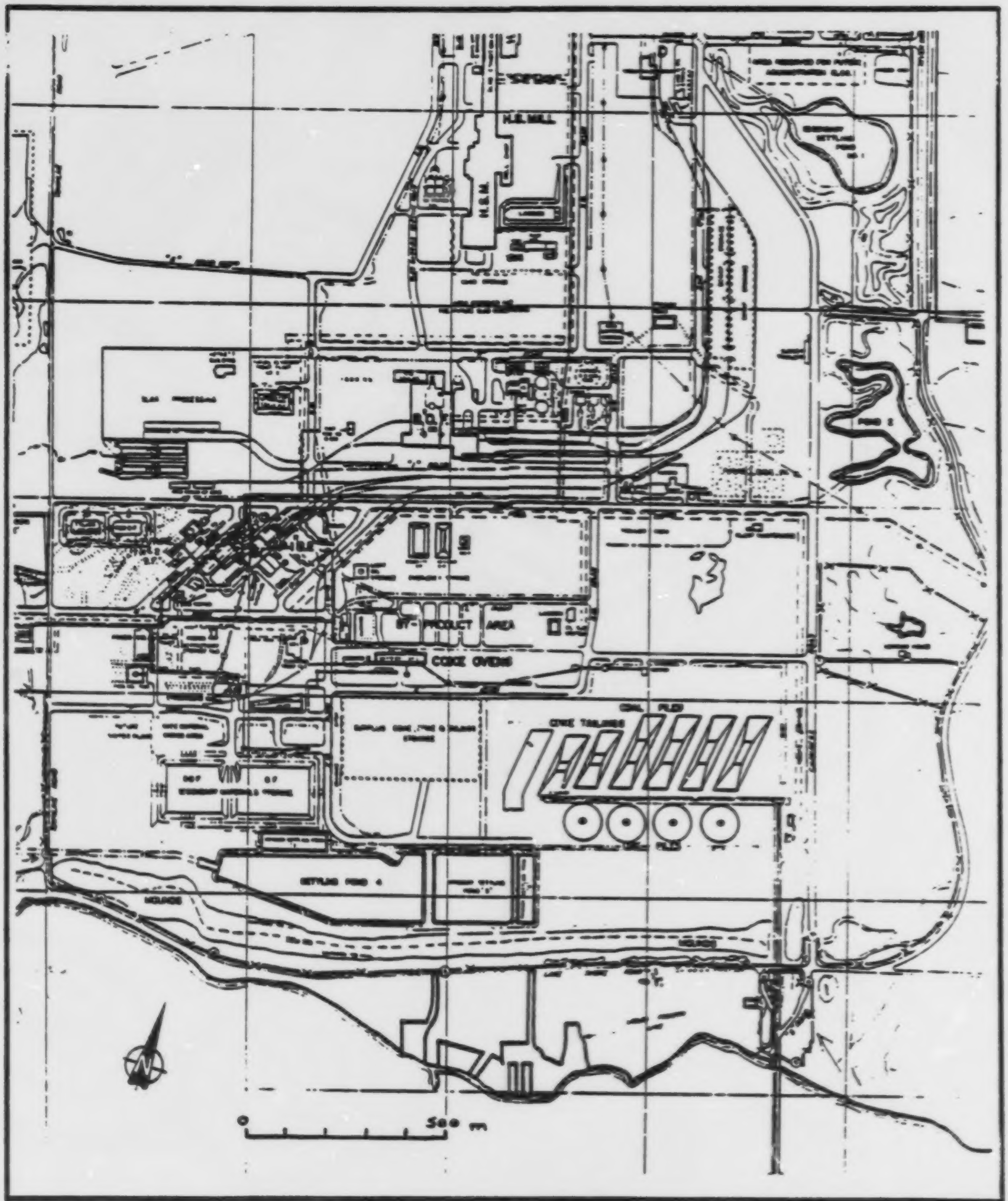
| Revisions | Date |

Nanticoke Area showing location of Stelco site, (Source: Simcoe, 1:50,000 map, sheet 40-I/16)

INTERA Technologies


H.S. MILL
H.S.M.
B.O.F.
BY-PRODUCT AREA
COKE OVENS
COAL PILE
COKE TAILINGS
SETTLING POND 4
0
500 m

|  |  |
|---|---|
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1985 Plan of Stelco site at Nantcoke, (Stelco Drawing #300099 First Stage Lake Erie Works)

INTERA Technologies

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Sault Ste. Marie Street Address Queen St. West to Baseline

MOE Region Northeastern Sault Ste. Marie

MOE District Sault Ste. Marie NTS Map Sheet 41 K/9

Historical Maps and Photos Available 1919 Town plan; 1925 fire insurance plan (sheets 29, 30, 31); 1949 revision of 1943 city plan (all from Sault Ste. Marie Public Library); 1950 air photo (NAPL A13085-169)

2. **Site Identification:**

Name Algoma Steel Co. Ltd.

Type of Facility Coke oven by-product plant

Operator(s) and Period(s) of Operation Lake Superior Corp./Algoma Steel Co. Ltd. (1911 to present)

3. **Site Characteristics:**

Size (when operated) Approx. 600 hectare including slag dump

Present Land Use Operating steel mill

Planned Land Use Same

Present Occupant(s) Algoma Steel Corp.

Present Land Use Adjoining Properties North - residential; east - commercial; west - rural/residential; south - St. Mary's River

Underground Utilities Numerous buried utilities on-site and in the surrounding streets

Soil Conditions Sand overlying clay overlying silt overlying silty sand till overlying bedrock

Site Access Limited, controlled access

4. **Evidence of Buried Wastes:**

Operating Period 1911 - present (77 years)

Excavation History Unknown

Visible Wastes Slag dump contains waste products, tar, oils, slag, etc.

Odour Coal tar odour around the site but attributable to active coke oven emmissions

Water Pollution Coal tar found in Bennett and Spring Creeks

PAH found in sediments and biota in the Algoma Slip (St. Mary's River)

5. **Resource Characteristics:**

Surface Water St. Mary's River, Spring Creek, Bennett Creek

Proximity Adjacent to site, forms southern boundary

Use Recreational (water supply upstream)

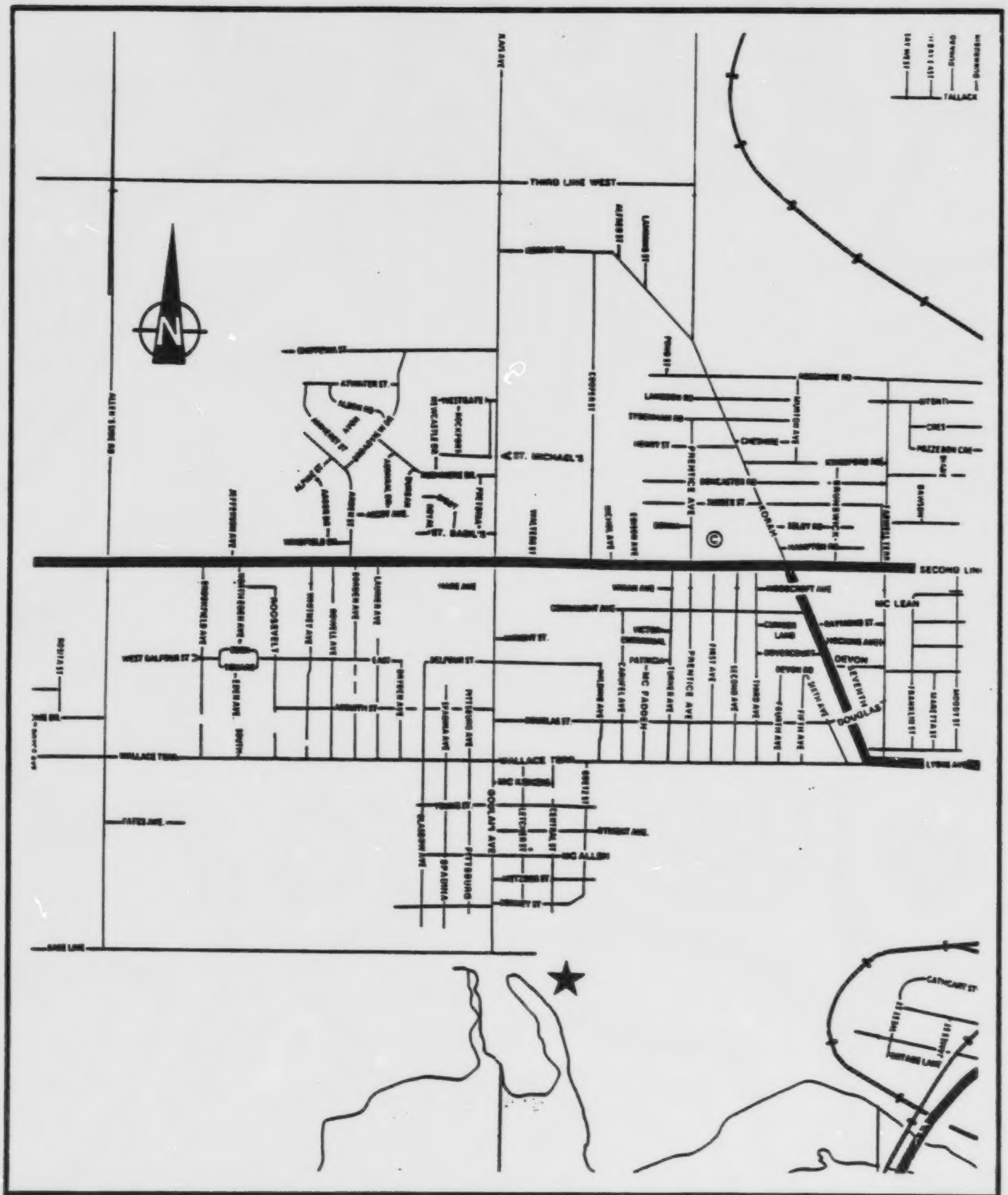
Groundwater, Proximity In bedrock, 30 to 100 m below surface

Use Municipal and industrial water supply

Proximity of Existing Wells Wells (Domtar, Cooper wells) adjacent to site; Municipal wells within 1 to 2 km of the site

Site Investigations Geocon (1983) - site investigation of slag dump area; Conestoga-Rovers and Assoc. - ongoing studies of Bennett Cr.

6. **Comments/Remarks:** Very large industrial site in operation for a long period of time; suspected of causing environmental impact on St. Mary's River; ongoing studies of coal tar contamination by MOE and Algoma; slag dump receives most plant site wastes.


N
THIRD LINE WEST
SECOND LINE
ALLEN'S SIDE RD
ST. MICHAEL'S
ST. BASIL'S
ATWATER ST.
WESTGATE
WEST BALFOUR ST
ROOSEVELT
EAST
BALFOUR ST.
DOUGLAS ST.
WALLACE TERR.
MC KENZIE
CENTRAL ST
SPADINA
PITTSBURG
DOUGLAS AVE
MC ALLEN
STREET AVE.
PRENTICE AVE
FIRST AVE
SECOND AVE
THIRD AVE
FIFTH AVE
SIXTH AVE
MC FADDEN
PATRICIA
CHESHIRE
DONCASTER RD
KORAH
MC LEAN
DEVON
DEVON RD
SEVENTH
DOUGLAS
LYONS AVE
TALLACK
CATHCART ST
BASE LINE
YATES AVE.

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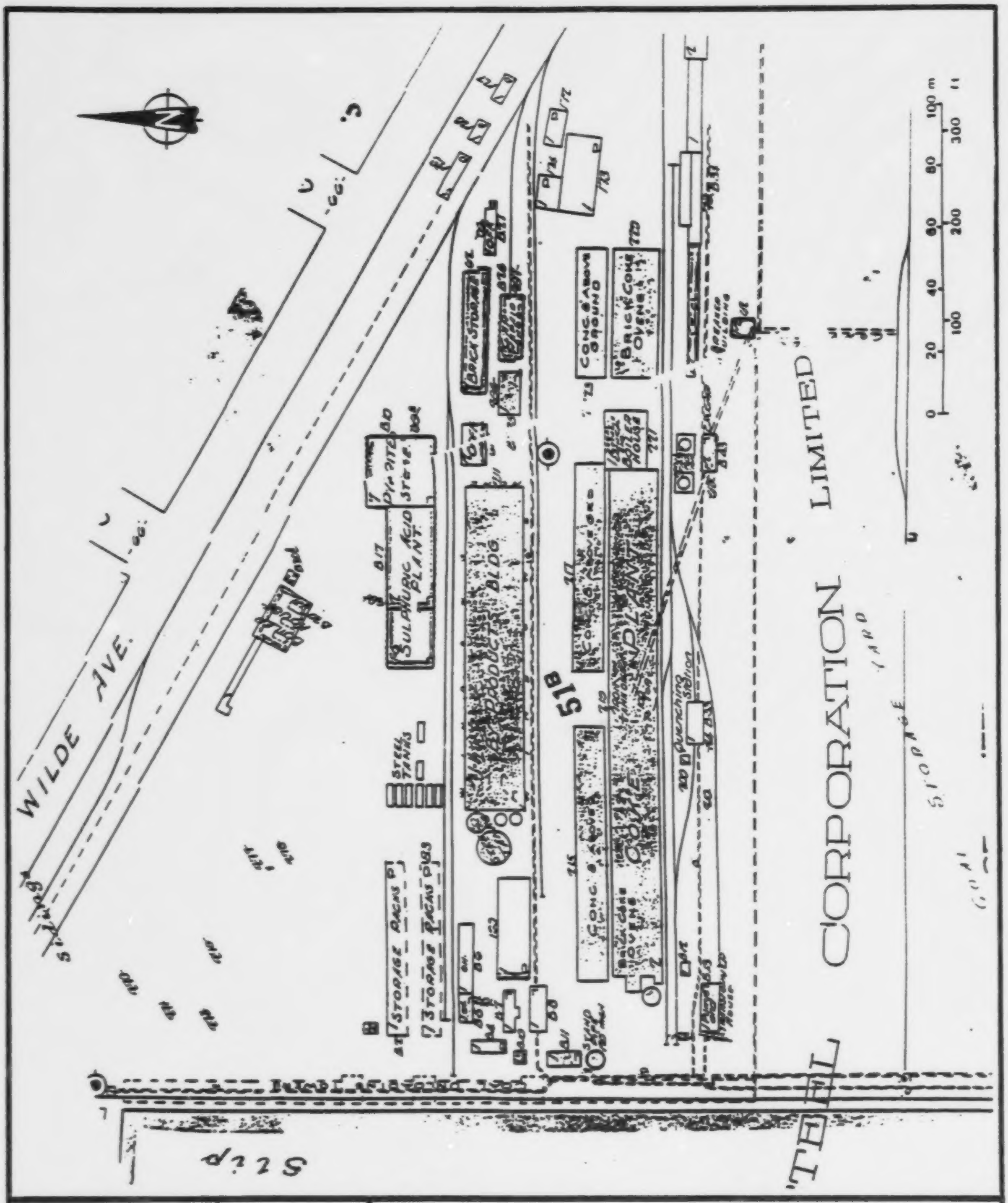
City of Sault Ste. Marie, showing location of Algoma Steel site.

INTERA Technologies


N
WILDE AVE.
SULPHURIC ACID PLANT
BY PRODUCT BLDG.
51B
COKE PLANT
BRICK STORAGE
CONC. & ABOVE GROUND
BRICK COKE OVENS
CONC. & ABOVE GROUND
BRICK COKE OVENS
QUENCHING STATION
STEEL TANKS
STORAGE RACKS
STORAGE RACKS
STEEL CORPORATION LIMITED
COAL STORAGE YARD
Slip
0
20
40
60
80
100 m
0
100
200
300 ft

| | | |
|---|---|---|
| Drawn by | Date | 1925 Plan of Algoma Steel Ltd. site, (Source: Fire insurance plan, Sault Ste. Marie Public Library, sheet 29) |
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| Revisions | Date | |
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INTERA Technologies

# INDUSTRIAL MANUFACTURED GAS PLANTS

# Fact Sheet for Survey of Industrial Sites

## 1. Site Location:

City Cambridge (Preston) Street Address 498 Eagle St. N.

MOE Region West Central

MOE District Cambridge NTS Map Sheet 40 P/8

Historical Maps and Photos Available 1884 fire insurance plan (Public Archives Canada NMC 9641); 1945 air photo (NAPL A9196-15)

## 2. Site Identification:

Name Preston Woollen Mills

Type of Facility Industrial oil gasification plant

Operator(s) and Period(s) of Operation Geo. Pattinson & Co. (1870s - 1890s)

## 3. Site Characteristics:

Size (when operated) Small less than 0.1 hectare

Present Land Use Industrial (manufacture of thermoplastic molding compounds)

Planned Land Use Same as present

Present Occupant(s) Aclo Compounders Inc.

Present Land Use Adjoining Properties North - Speed River; east - vacant land and institutional (Church); south - industrial/commercial (truck garage); west - vacant land

Underground Utilities Watermain and storm and sanitary sewers along Eagle St.

Soil Conditions Unknown

Site Access Uncontrolled

4. **Evidence of Buried Wastes:**

Operating Period 1870s - 1890s (about 20 years)

Excavation History Gas house building demolished and excavated in late 1890s to construct existing building no. 12 (Aclo office space); some excavation associated with plant expansion (1950s)

Visible Wastes None reported or observed

Odour None reported or observed (some compound odour associated with Aclo operation)

Water Pollution None reported or observed

5. **Resource Characteristics:**

Surface Water Speed River

Proximity Adjacent

Use Recreational

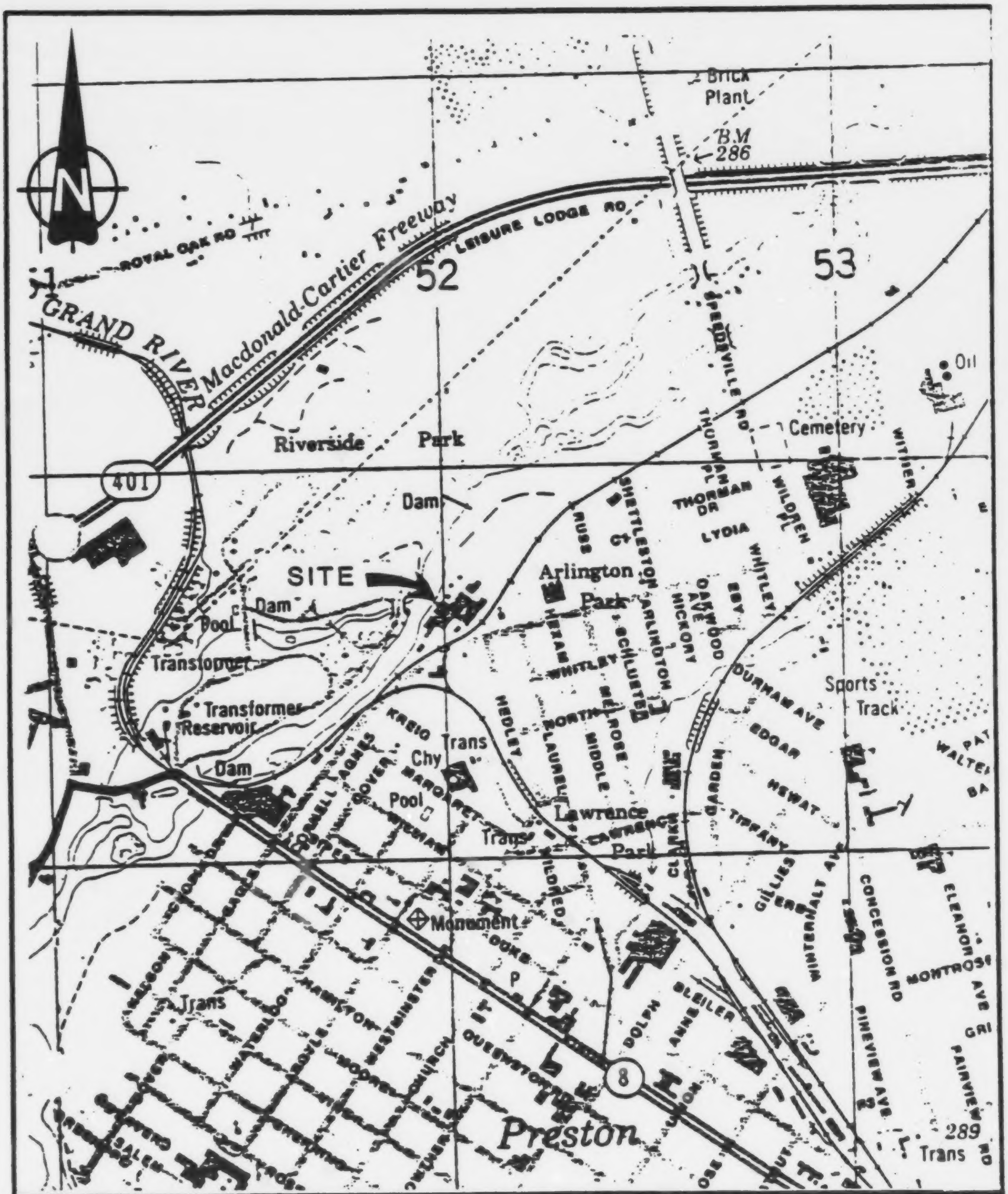
Groundwater, Proximity Unknown

Use Municipal water supply

Proximity of Existing Wells Supply wells on opposite side of Speed River approximately 300 m north of site

Site Investigations None known

6. **Comments/Remarks:** Small oil gasification plant that operated in association with the woolen mill; off-site disposal areas unknown, likely on-site disposal


N
Brick Plant
BM 286
ROYAL OAK RD
GRAND RIVER
Macdonald-Cartier Freeway
LEISURE LODGE RD
52
53
401
Riverside
Park
Dam
Oil
Cemetery
SITE
Dam
Pool
Transformer
Transformer
Reservoir
Dam
Arlington
Park
THORMAN DR
LYDIA
WHITLEY
ARLINGTON
SCHLUETER
HICKORY
OAKWOOD AVE
RUSS
Sports Track
DURHAM AVE
EDGAR
HEWAT
TIFFANY
GILLIES
WINTERHALT AVE
CONCESSION RD
ELEANOR AVE
MONTROSE
FAIRVIEW
Lawrence
Park
Chy
Trans
Pool
Trans
MARGARET
KREIG
HEDLEY
NORTH
MIDDLE
MELROSE
Monument
Trans
HAMILTON
WATERLOO
WESTMINSTER
QUEENSTON
CHURCH ST
DOLPH
BLEILER
8
Preston
289
Trans
PINEVIEW AVE

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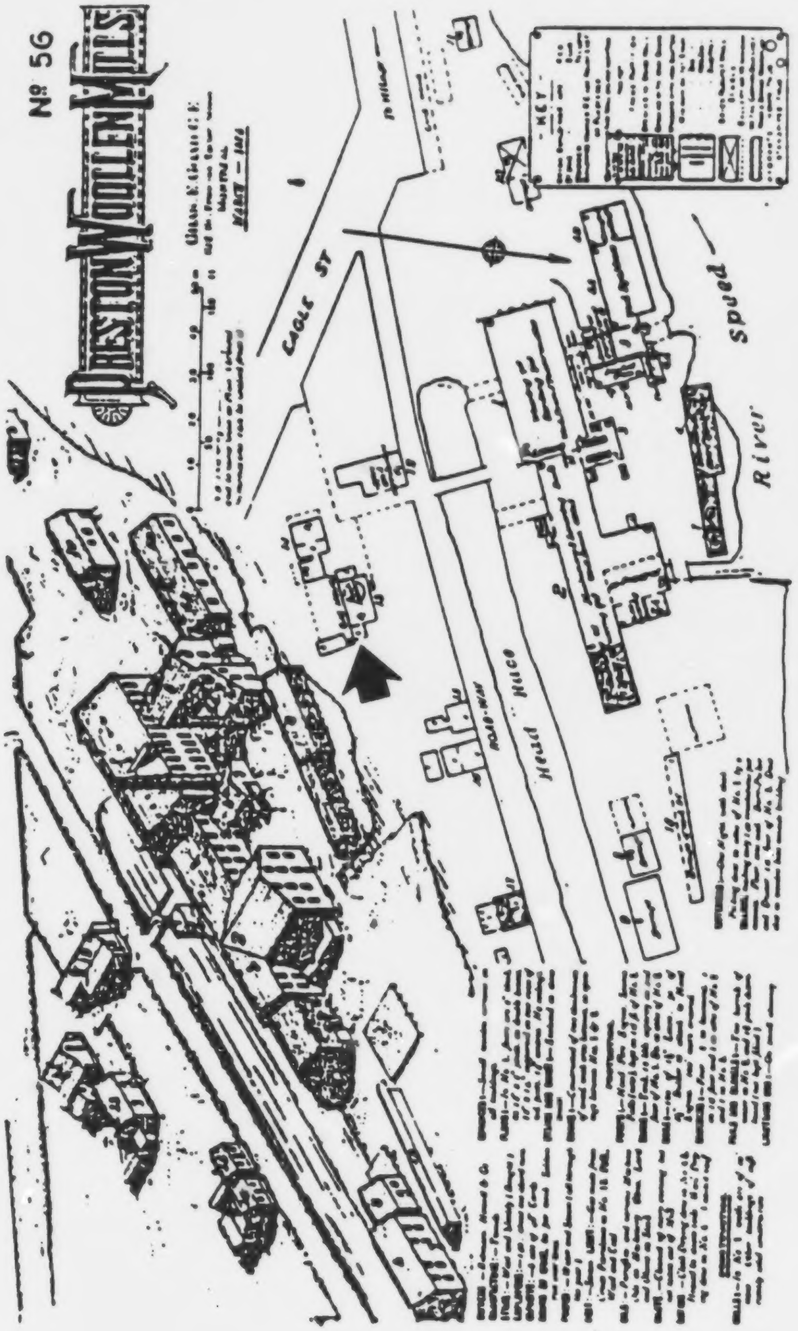
City of Cambridge (Preston), showing location of Pattinson Woollen Mill site.

INTERA Technologies


Nº 56
PRESTON WOOLLEN MILLS
EAGLE ST
KEY
River
Speed

| | | |
|---|---|---|
| Drawn by | Date | 1884 Plan of Pattinson Woollen Mill site, (Source: Fire Insurance Map, Public Archives Canada, NMC-9641). |
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| Revisions | Date | |
| | | |

INTERA Technologies

# Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Ottawa Street Address 552 and 562 Booth Street

MOE Region Southeastern

MOE District Ottawa NTS Map Sheet 31 G/5

Historical Maps and Photos Available c1910 building plan (Ignatieff, 1981); 1922 fire insurance plan (Public Archives Canada, NMC 10837, sheet 124); several historical photos (Ignatieff, 1981)

2. **Site Identification:**

Name Dominion of Canada, Fuel Testing Station/Fuel Research Labs

Type of Facility Semi-industrial coal gas plant/by-product coke oven

Operator(s) and Period(s) of Operation Government of Canada - Mines Branch (1911 - 1940s)

3. **Site Characteristics:**

Size (when operated) 1.0 hectare

Present Land Use Commercial/public use

Planned Land Use Same as present

Present Occupant(s) Government of Canada, laboratories and offices

Present Land Use Adjoining Properties North, south, west, east - Government buildings

Underground Utilities Storm and sanitary sewers, watermain, gas and telephone along Booth St.

Soil Conditions Unknown

Site Access Unrestricted during the day, restricted at night

4. **Evidence of Buried Wastes:**

Operating Period Approx. 1911 - 1940, operated intermittently as a research facility

Excavation History Excavation for construction of current building at 552 Booth (1920s)

Visible Wastes None reported or observed

Odour None reported or observed

Water Pollution None reported or observed

5. **Resource Characteristics:**

Surface Water Dows Lake

Proximity 500 m south

Use Recreational

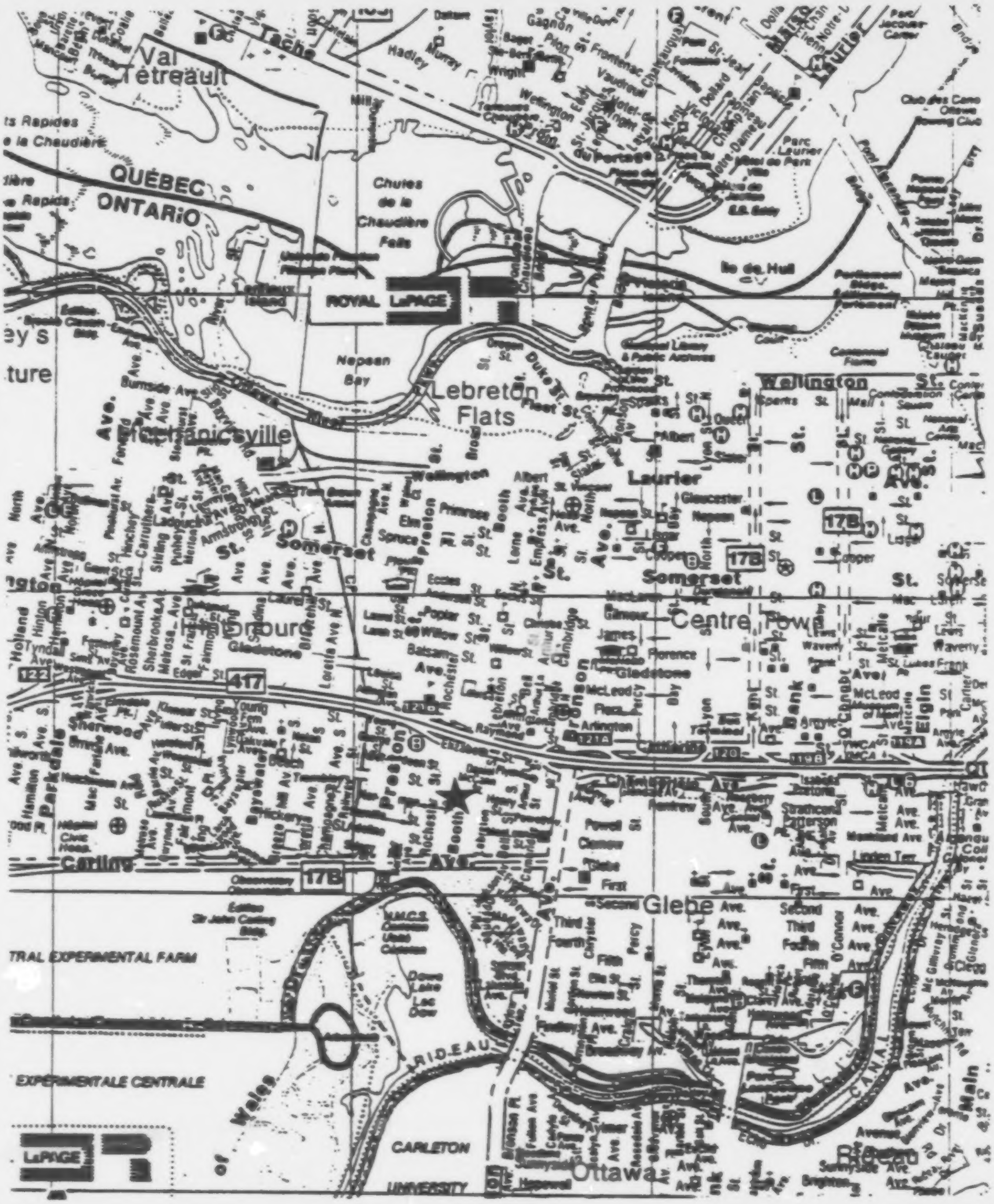
Groundwater, Proximity Unknown

Use None reported

Proximity of Existing Wells None

Site Investigations Unknown

6. **Comments/Remarks:** This site is actually two sites - a coal gas producer was used at 552 Booth St. (1920s) and a 2 ton by-product coke oven was used at 562 Booth St. (1920s, 30s) in support of Mines Branch carbonization studies of Canadian coals.


Val Tétreault
QUÉBEC
ONTARIO
Chutes de la Chaudière Falls
ROYAL LePAGE
Nepean Bay
Lebreton Flats
Mechanicsville
Ottawa River
Wellington St.
Laurier Ave.
Somerset St.
Centre Town
Hintonburg
417
17B
Carling Ave.
Glebe
Rideau
Dows Lake
Lac Dow
CENTRAL EXPERIMENTAL FARM
FERME EXPERIMENTALE CENTRALE
CARLETON UNIVERSITY
Ottawa
Île de Hull
Canal
LePAGE

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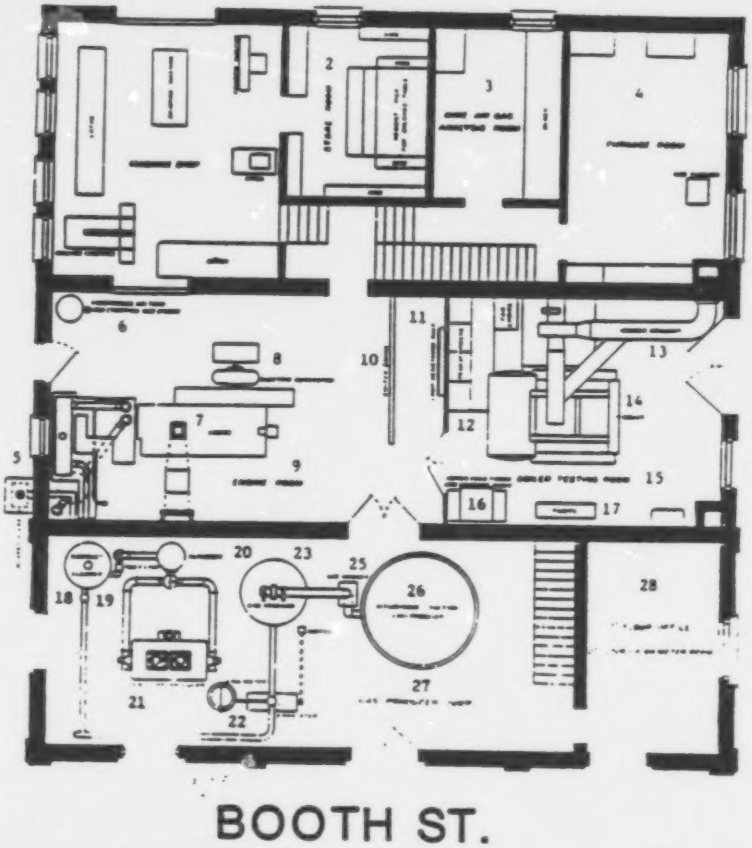
City of Ottawa, showing location of Dominion of Canada, Fuel Testing Laboratories.

INTERA Technologies



Fuel Testing Station - ground floor: 1. Machine shop, 2. Store room, 3. Mine air gas analysis room, 4. Gas furnace room, 5. Antipulsator, 6. Compressed air tank for starting gas engine, 7. Engine, 8. Electric generator, 9. Engine room, 10. Switch board, 11. Lamp resistance rack, 12. Transformers, 13. Induced draught, 14. Boiler, 15. Boiler testing room, 16. Water feed tanks and weighing scale, 17. Pumps, 18. Sawdust cleaner, 19. Tar filter, 20. Scrubber, 21. Peat gas producer, 22. Gasometer, 23. Gas receiver, 24. Exhauster, 25. Gas washer, 26. Bituminous section gas producer, 27. Gas producer room, 28. Office

| | | |
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| Drawn by | Date | Plan of Dominion of Canada, Fuel Testing Station, 552 Booth Street., (Source: Ignatieff, 1981) |
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INTERA Technologies

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Niagara Falls Street Address north end of Fourth Avenue

MOE Region West Central

MOE District Welland NTS Map Sheet 30 M/3

Historical Maps and Photos Available 1916 fire insurance plan (Public Archives Canada NMC 9581, sheet 22); 1916 fire insurance plan key (Regional Collection, University of Western Ontario, sheet 13); 1920 fire insurance plan (Public Archives Canada, NMC 9582, sheet 22); 1967 air photo (NAPL A20291-2)

2. **Site Identification:**

Name American Cyanamid Co./Cyanamid Canada Ltd.

Type of Facility Industrial coal gasification plant

Operator(s) and Period(s) of Operation American/Canadian Cyanamid Co. (1916 to present); Gas Works present from 1916 to at least 1920

3. **Site Characteristics:**

Size (when operated) 6.0 hectare (Gas Works 0.7 hectare)

Present Land Use Industrial

Planned Land Use Same

Present Occupant(s) Cyanamid Canada Ltd.

Present Land Use Adjoining Properties North - vacant; east - railway; south - commercial and residential; west - commercial and residential

Underground Utilities Numerous on-site utilities and pipelines

Soil Conditions Clay, silt and sand overlying till

Site Access Fenced industrial site - controlled access

4. **Evidence of Buried Wastes:**

Operating Period Plant 72 years; Gas Works uncertain period, minimum of 4 years

Excavation History Furnace House built over gas works

Visible Wastes Tar residue encountered in geotechnical borehole for construction of furnace house

Odour Odours detectable off-site but are associated with the present operation of the plant and not the gas works

Water Pollution None reported or observed

5. **Resource Characteristics:**

Surface Water Power Canal, Niagara River

Proximity Power Canal - 450 m, Niagara River - 760 m

Use Industrial, recreational

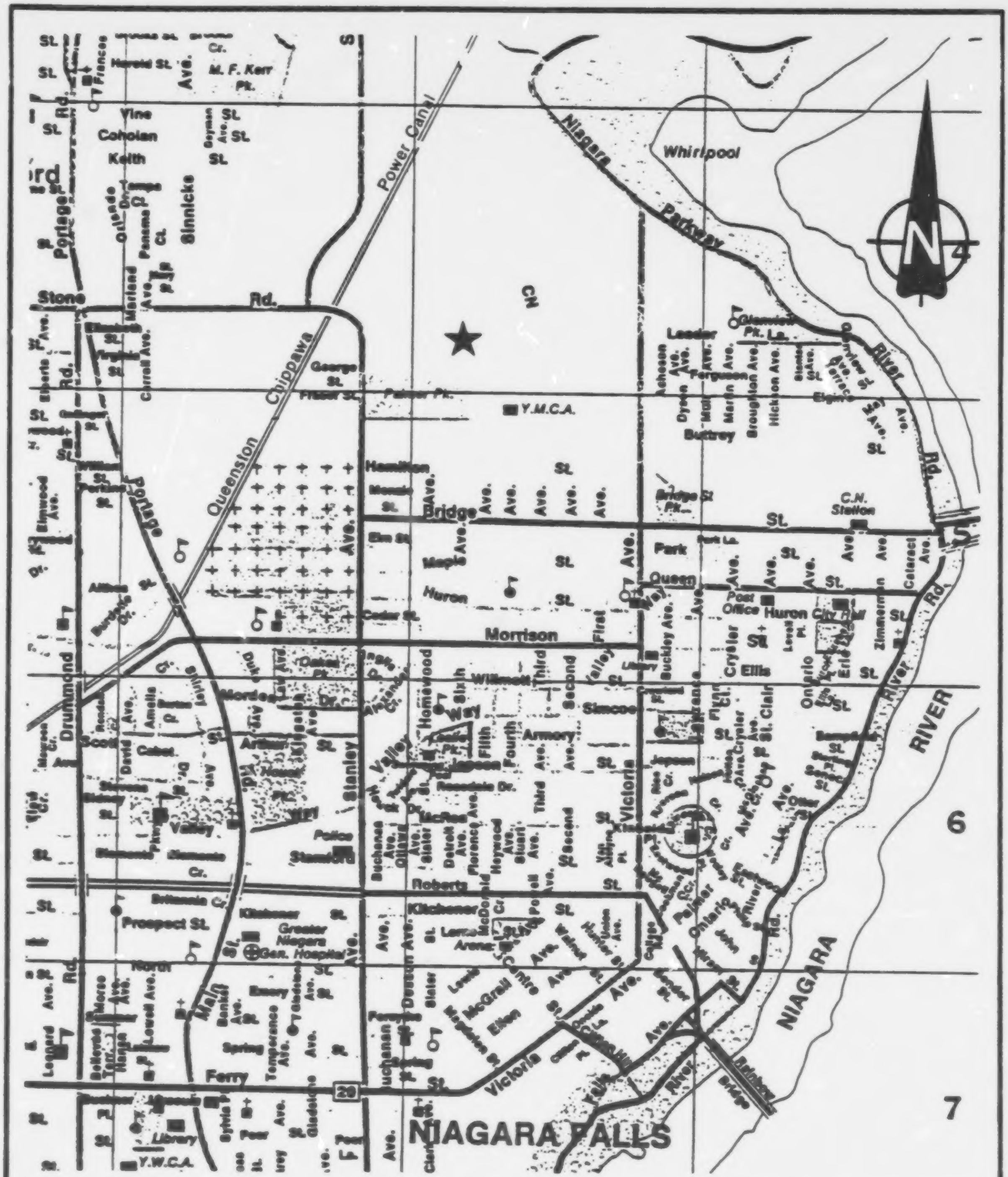
Groundwater, Proximity Water table 5 - 10 m below surface

Use Not used

Proximity of Existing Wells Regional wells in bedrock (Lockport formation)

Site Investigations Preliminary hydrogeologic study (1985, Terraqua Investigations Ltd.); Waste area identification and assessment (1987, Gartner Lee Assoc.)

6. **Comments/Remarks:** Active industrial site presently under investigation by MOE. Gas Works now built over. Other problems on-site not related to Gas Works include cyanide contamination; underground tar well evident on fire insurance plans.


N
Whirlpool
Niagara Parkway
Power Canal
Queenston
Chippawa
Stone Rd.
CN
Y.M.C.A.
Bridge St.
C.N. Station
Park
Queen St.
Post Office
Huron
City Hall
Morrison
Portage
Drummond
Stanley Ave.
Victoria Ave.
Ferry St.
Greater Niagara Gen. Hospital
Police
Library
Y.W.C.A.
Rainbow Bridge
River Rd.
NIAGARA RIVER
NIAGARA FALLS
6
7

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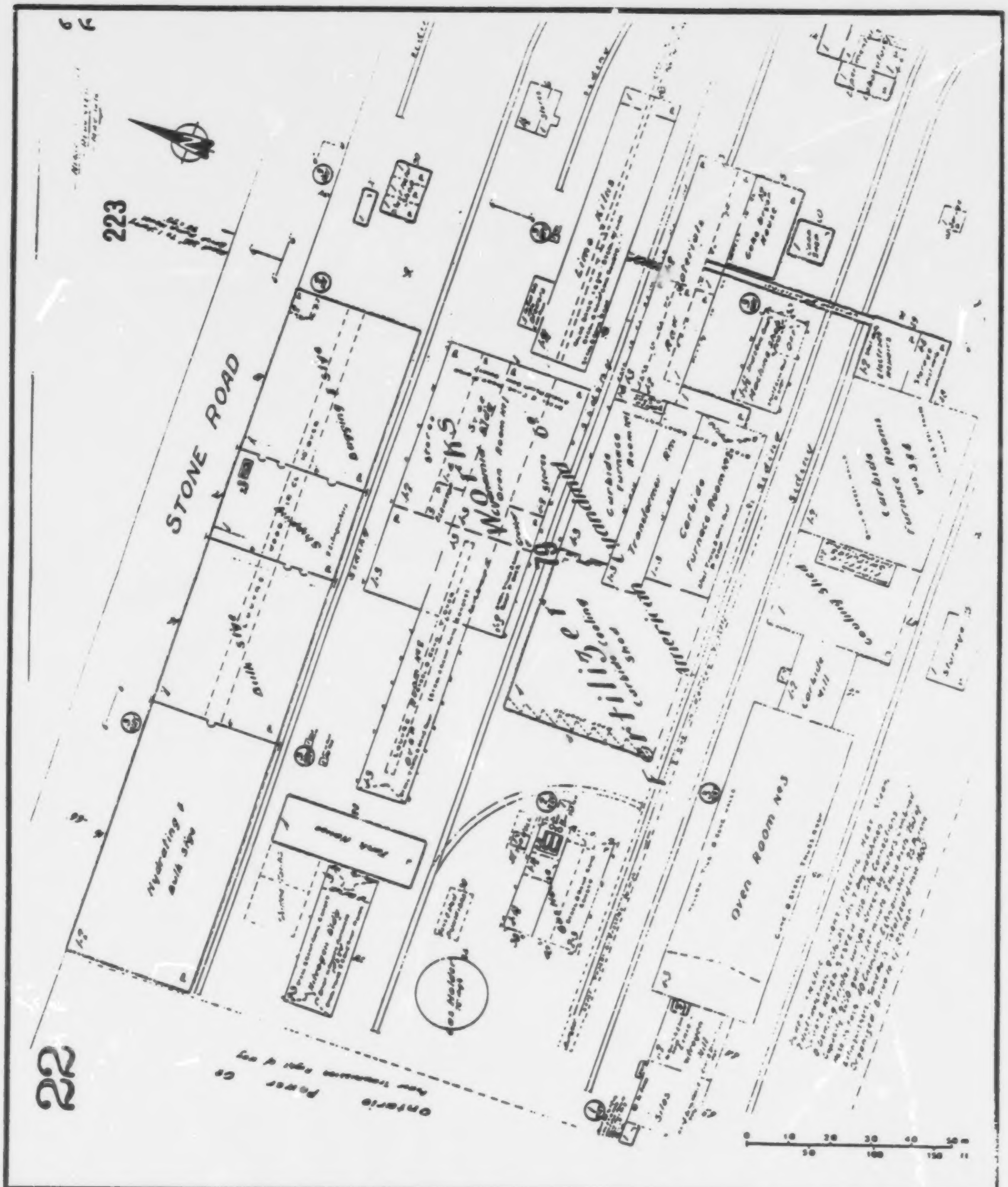
City of Niagara Falls, showing location of American Cyanamid Co. site.

INTERA Technologies


223
STONE ROAD
Hydrating & Bulk Stge
Lime Kilns
Transformer
Carbide Furnace Room
Carbide Furnace Rooms
Cooling Sheds
Carbide Mill
Oven Room No 3
Silos
Ontario Power Co
22
0
10
20
30
40
50 m
50
100
150 ft

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| Revisions | Date |

1916 Plan of American Cyanamid site, (Source: Fire Insurance Map, Public Archives Canada, NMC-9581, sheet 22)

INTERA Technologies

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City North Bay Street Address 535 Stanley St.

MOE Region Northeastern

MOE District North Bay NTS Map Sheet 31 L/6

Historical Maps and Photos Available 1915 fire insurance plan (Public Archives of Canada NMC 9792, sheet 11); 1946 fire insurance plan (Public Archives Canada NMC 10712, sheet 23); 1963 air photo (NAPL A17997-34)

2. **Site Identification:**

Name Pintsch Compressing Co. Ltd.

Type of Facility Industrial manufactured gas plant, Pintsch gas (oil pyrolysis)

Operator(s) and Period(s) of Operation Pintsch Compressing Co. Ltd. (1910 - 1956)

3. **Site Characteristics:**

Size (when operated) 1.5 hectare

Present Land Use Light industrial

Planned Land Use No development

Present Occupant(s) Rahmet Inc.

Present Land Use Adjoining Properties North & west - light industrial; east - railway; south - parkland

Underground Utilities Storm and sanitary sewer, water and gas along Stanley Street; Storm and sanitary sewer and water along Regina Street

Soil Conditions Unknown

Site Access Site is fenced with gate - controlled access

4. **Evidence of Buried Wastes:**

Operating Period 1910 - 1956 (46 years)

Excavation History Storm and sanitary sewers along Stanely St. (1963) and Regina St. (1975)

Visible Wastes None reported or observed

Odour None reported or observed

Water Pollution None reported or observed

5. **Resource Characteristics:**

Surface Water Lake Nipissing

Proximity 150 m west of site

Use Recreational

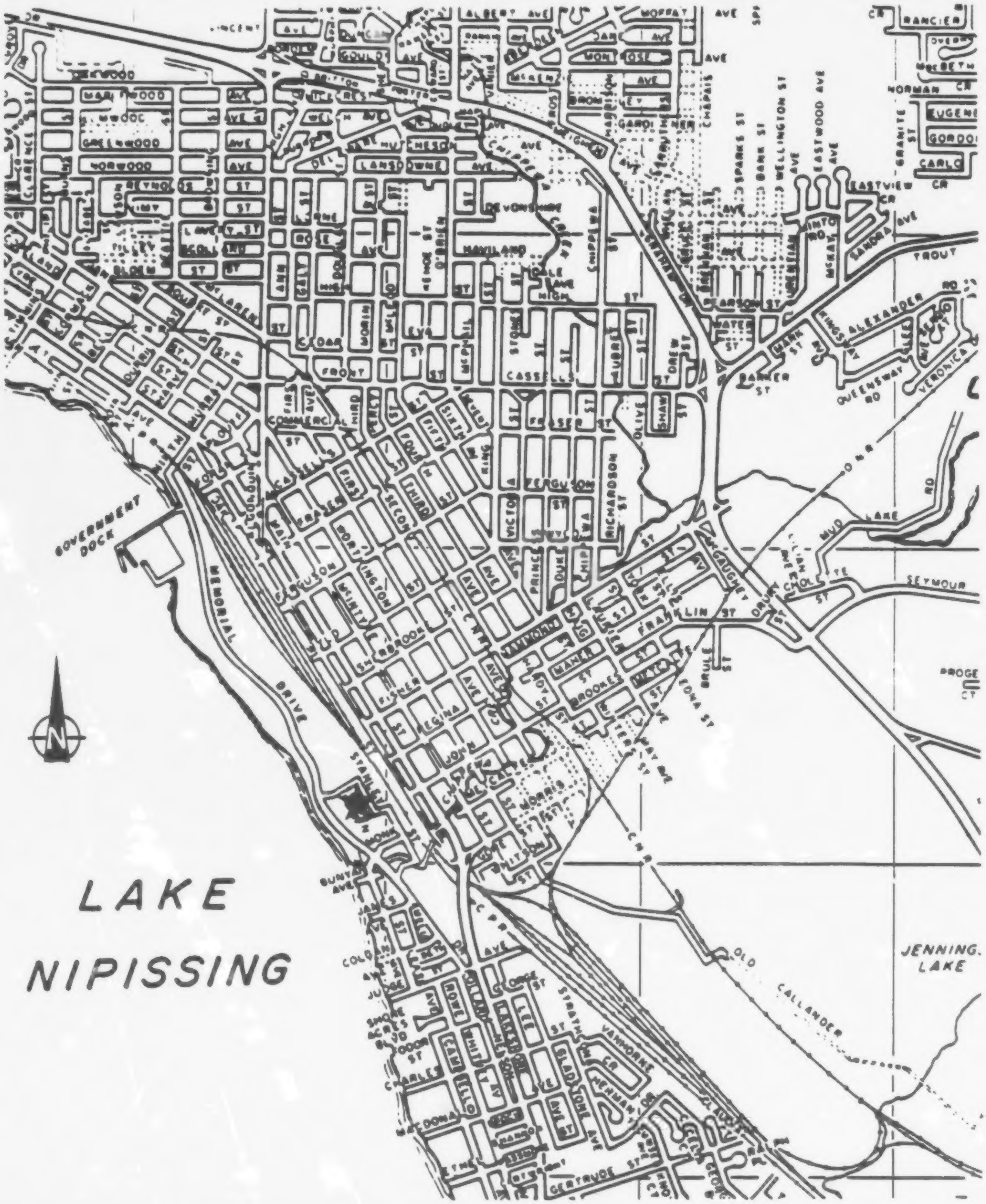
Groundwater, Proximity Unknown

Use Not used

Proximity of Existing Wells Unknown

Site Investigations None reported

6. **Comments/Remarks:** Original building on the site; no evidence of waste


LAKE
NIPISSING
GOVERNMENT DOCK
MEMORIAL
DRIVE
N
ALBERT AVE
MOFFAT AVE
RANCIER
NORMAN CR
EUGENE
GORDON
CARLO
EASTVIEW CR
GRANITE ST
EASTWOOD AVE
WELLINGTON ST
BANK ST
SPARKS ST
CHAPAIS
HUTCHESON
LANSDOWNE AVE
DEVONSHIRE
HAVILAND
CHIPPEWA
CHIPPEWA CREEK
SANDRA AVE
TROUT
ALEXANDER RD
PEARSON ST
WATER ST
BARKER ST
MARK ST
QUEENSWAY RD
VERONICA
MUD LAKE RD
CEDAR
FROST
CASSELLS
FRASER
COMMERCIAL
FERGUSON
RICHARDSON ST
DREW
OLIVE
SHAW
MCGAUGHEY
FRANKLIN ST
SEYMOUR
BRULE
FISHER
REGINA AVE
JOHN
STANLEY
MORRIS
WHITSON ST
BUNYAN AVE
JANE
JUDGE
SHORE
CHARLES
MACDONALD
GERTRUDE ST
STRATHCONA
VANHORNE CR
LEE
O.N.R.
C.N.R.
C.P.R.
OLD CALLANDER
JENNINGS LAKE
PROGE CT

| | |
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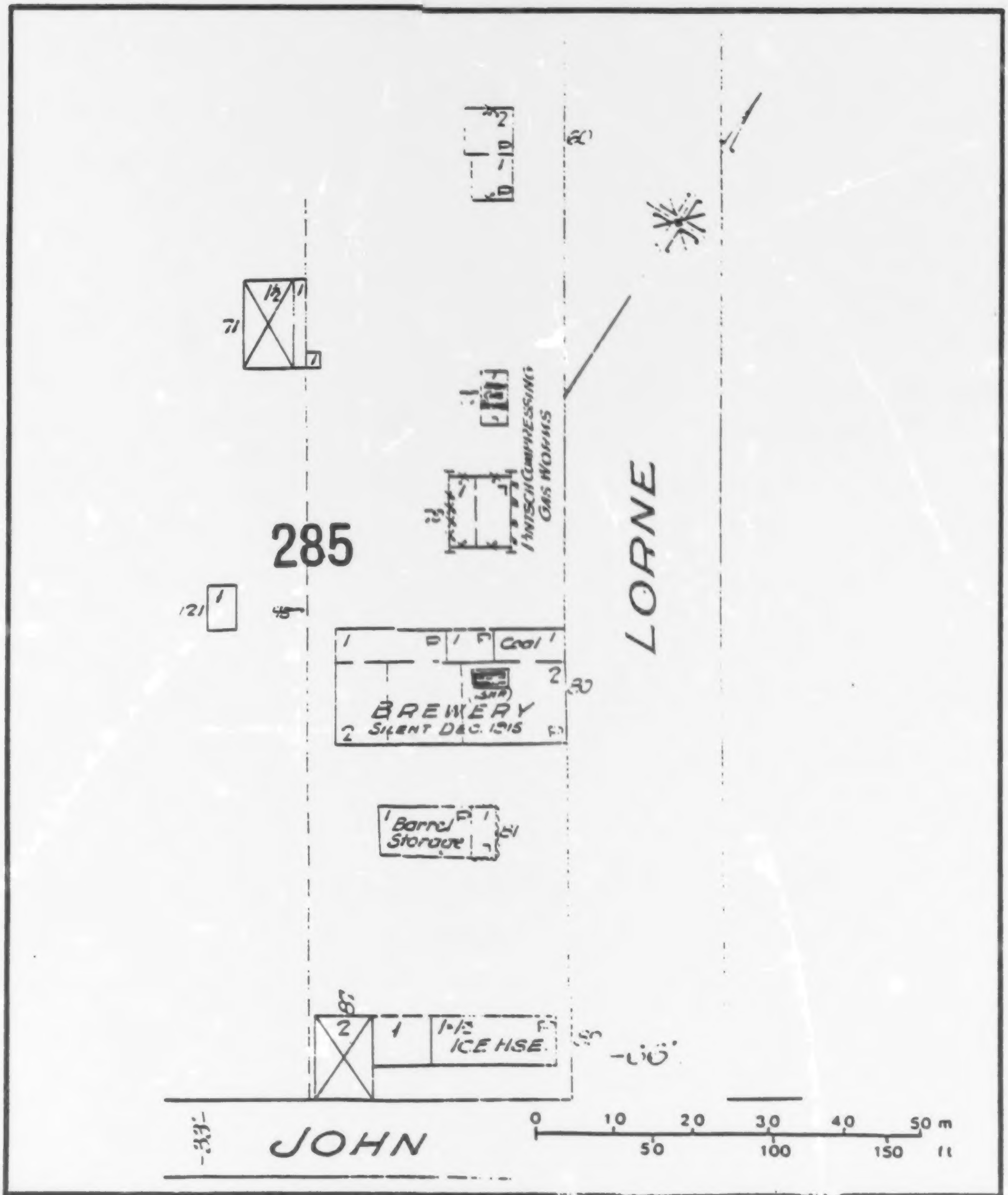
| | |

City of North Bay, showing location of Pintsch Compressing Co. site.

INTERA Technologies


285
LORNE
JOHN
PINTSCH COMPRESSING GAS WORKS
BREWERY
SILENT DEC. 1915
Coal
Barrel Storage
ICE HSE.
71
121
80
30
81
-33-
0
10
20
30
40
50 m
50
100
150
ft

| | |
|---|---|
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1915 Plan of Pintsch Compressing Co. site, (Source: Fire Insurance Map, Public Archives Canada, NMC-9792, sheet 11)

INTERA Technologies

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Toronto

Street Address South of Peter St. between Front St. W. and Lakeshore Blvd. W.

MOE Region Central

MOE District Toronto

NTS Map Sheet 30 M/11

Historical Maps and Photos Available 1909 fire insurance plan (Public Archives Canada, NMC 31775, sheet 75); 1935 air photo (NAPL A6591-40)

2. **Site Identification:**

Name Pintsch Compression Co. Gas Plant

Type of Facility Pintsch Gas, oil pyrolysis manufactured gas plant

Operator(s) and Period(s) of Operation Pintsch Compression Co. (1906 - 1960)

3. **Site Characteristics:**

Size (when operated) 0.8 hectare

Present Land Use Public - commercial (site of Toronto Domed Stadium)

Planned Land Use Toronto Domed Stadium under construction

Present Occupant(s) Toronto Domed Stadium

Present Land Use Adjoining Properties North - rail lines, high rise offices; East and West - City Place, commercial development; South - Lakeshore Blvd. W.

Underground Utilities To be constructed, formerly adjacent to John St. Pumping Station

Soil Conditions 0 - 2 m silty fill with cinders, brick, 2 - 4 m clayey silt, 4 - 6 m silt and shale, 6 m shale

Site Access Controlled access during construction

4. **Evidence of Buried Wastes:**

Operating Period 1906 - 1960 (54 years)

Excavation History Domed stadium construction, underground tanks removed (1986, 1987)

Visible Wastes Fluid with hydrocarbon odour removed from tanks (1986); Oil staining on surface soil samples - bh 32 (1985)

Odour Fuel odour on soil samples - bh 32 (1985)

Water Pollution None reported or observed

5. **Resource Characteristics:**

Surface Water Toronto harbour (Lake Ontario)

Proximity 200 m south

Use Recreational, industrial

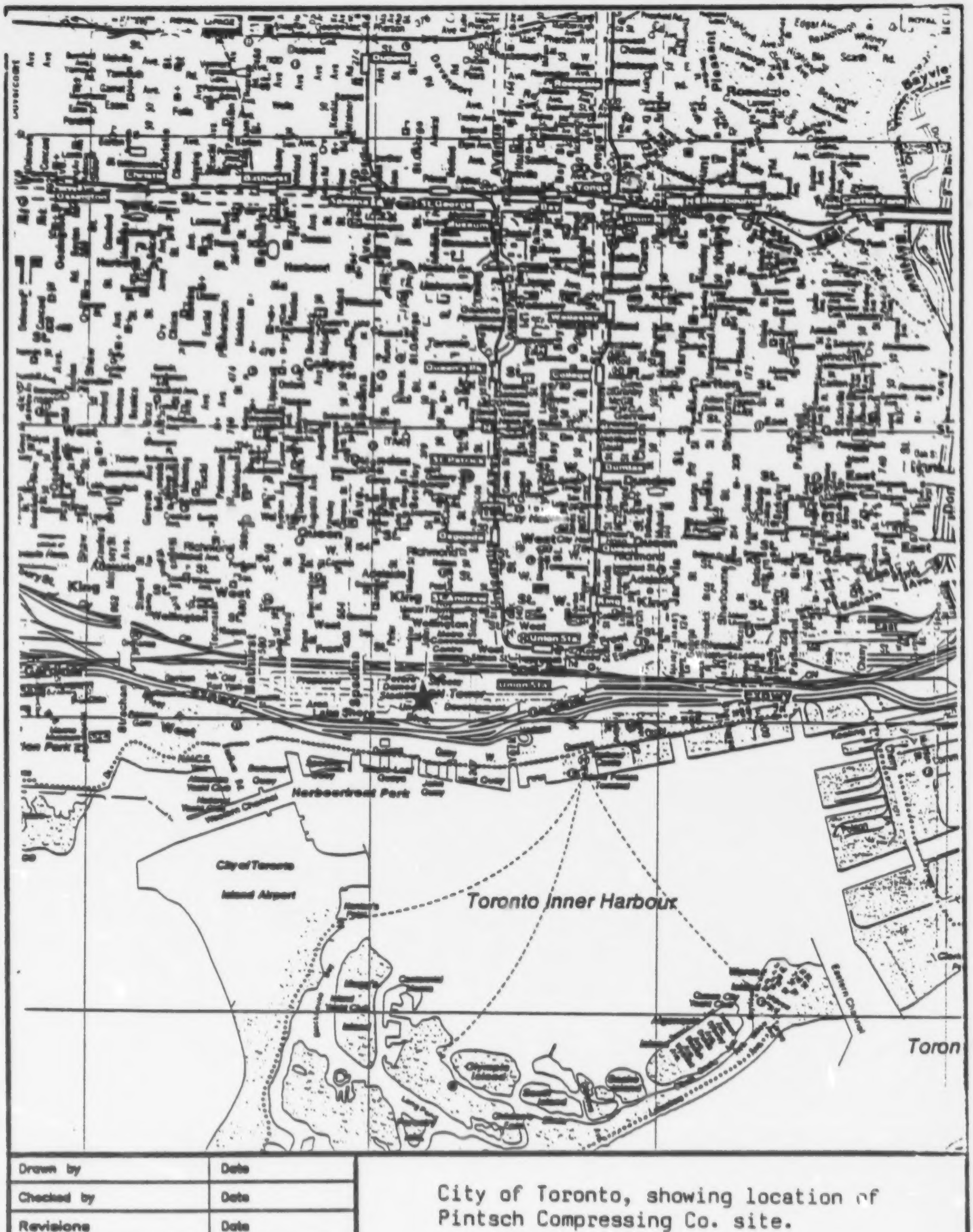
Groundwater, Proximity 1.5 m

Use None

Proximity of Existing Wells None reported in area

Site Investigations Brown Associates (1986) & Geocon (1985) for redevelopment of CN Precinct "A" Railway lands

6. **Comments/Remarks:** Underground tanks and soil in vicinity of former site removed during construction of Domed Stadium. Underground tank encountered at southwest corner of stadium, site known prior to excavation


Toronto Inner Harbour
City of Toronto Island Airport
Harbourfront Park
Spadina
Yonge
Bay
Bloor
Queen
King
Front
Wellington
Dundas
College
Union Stn
Lake Shore
Bathurst
Strachan
Toron

| | | |
|---|---|---|
| Drawn by | Date | City of Toronto, showing location of Pintsch Compressing Co. site. |
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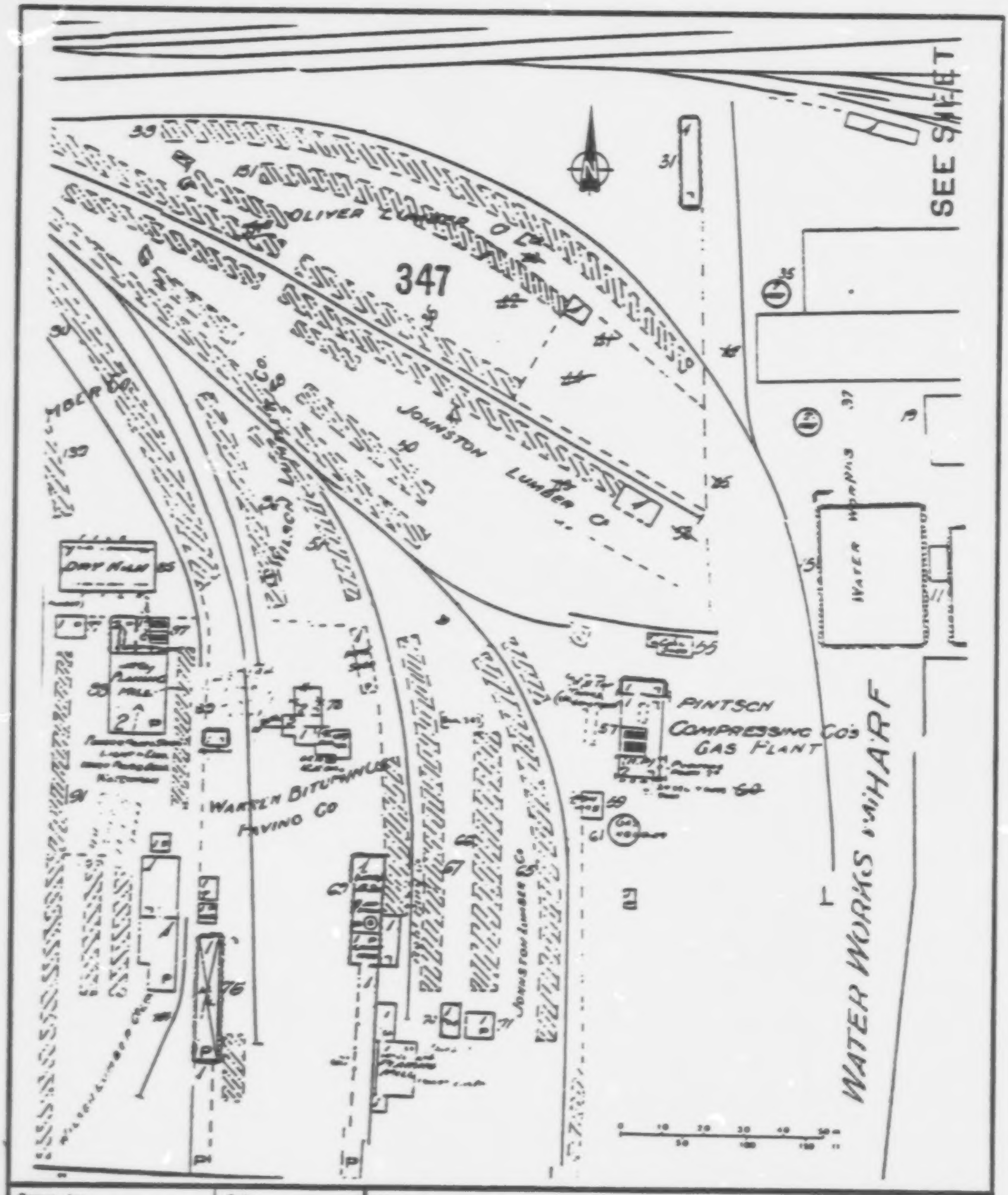
| | | |
| INTERA Technologies | | |


SEE SHEET
347
OLIVER LUMBER CO
JOHNSTON LUMBER CO
WILSON LUMBER CO
DRY KILN
PLANING MILL
WARREN BITUMINOUS PAVING CO
PINTSCH COMPRESSING CO'S GAS PLANT
WATER WORKS
WATER WORKS WHARF
JOHNSTON LUMBER CO
N
0 10 20 30 40 50
50 100 150

| | |
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| Revisions | Date |

INTERA Technologies

1909 Plan of Pintsch Compressing Co. (Toronto) site, (Source: Fire Insurance Map, Public Archives Canada, NMC-31775, sheet 75)

# Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Windsor

Street Address Block bounded by Grand Marais Elsmere Ave., North Service Rd. and Howard Ave.

MOE Region Southwestern

MOE District Windsor

NTS Map Sheet 40 J/6

Historical Maps and Photos Available 1953 fire insurance plan (Public Archives Canada, NMC, sheet 441); 1950 air photo, National Air Photo Library (A12504-128); 1952 air photo, National Air Photo Library (A13595-10)

2. **Site Identification:**

Name Union Natural Gas Co.

Type of Facility Oil gas plant

Operator(s) and Period(s) of Operation Union Gas Co. (1929 to late 1950s)

3. **Site Characteristics:**

Size (when operated) Approx. 5 hectare

Present Land Use Union Gas regulator facility (S.W.), construction co. yard, warehouse, shop and offices (E.), vacant space

Planned Land Use As is

Present Occupant(s) Union Gas Co. Ltd., Woodall Construction Co. Ltd.

Present Land Use Adjoining Properties West - commercial; Northwest - commercial; North & Northeast - residential; east - light industrial

Underground Utilities Gas mains and pipelines

Soil Conditions Insitu soil - silt and silty sand (creek bank); fill (0.5 - 2.0 m) in places

Site Access Restricted in area of former gasometer, horton spheres, gas plant and separators (Woodall Const.)

4. **Evidence of Buried Wastes:**

Operating Period 1929 to late 1950s - intermittent operation (about 25 years)

Excavation History Unknown

Visible Wastes None observed or reported

Odour None observed or reported

Water Pollution None observed or reported

5. **Resource Characteristics:**

Surface Water Small creek runs through site

Proximity Unknown

Use Industrial, storm drainage

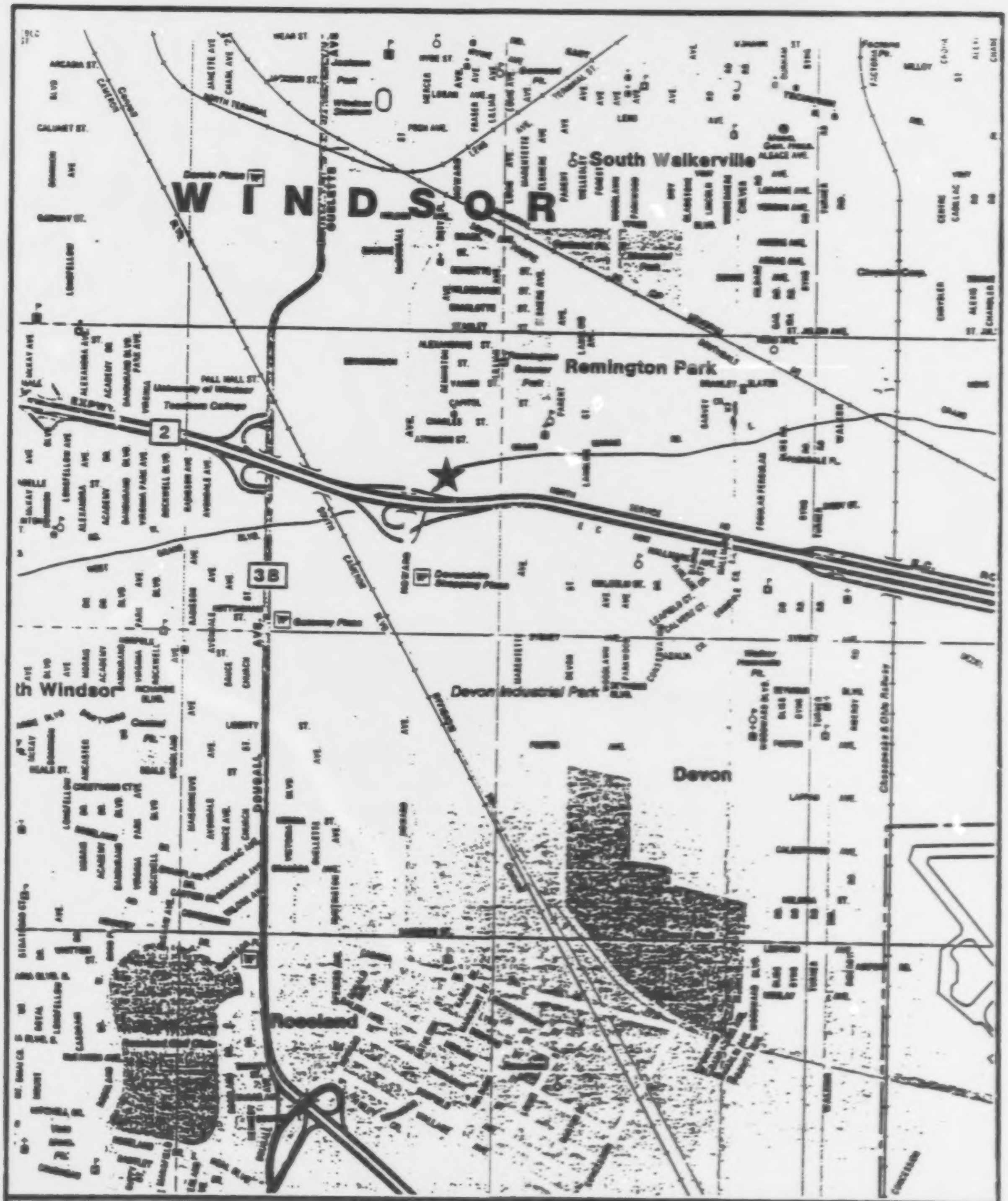
Groundwater, Proximity Unknown

Use Not used

Proximity of Existing Wells Unknown

Site Investigations None reported

6. **Comments/Remarks:** Dayton Process oil gas plant used to generate manufactured gas to supplement natural gas reserves


WINDSOR
South Walkerville
Remington Park
University of Windsor Teachers College
2
3B
th Windsor
Devon Industrial Park
Devon
Roseland
DOUGALL

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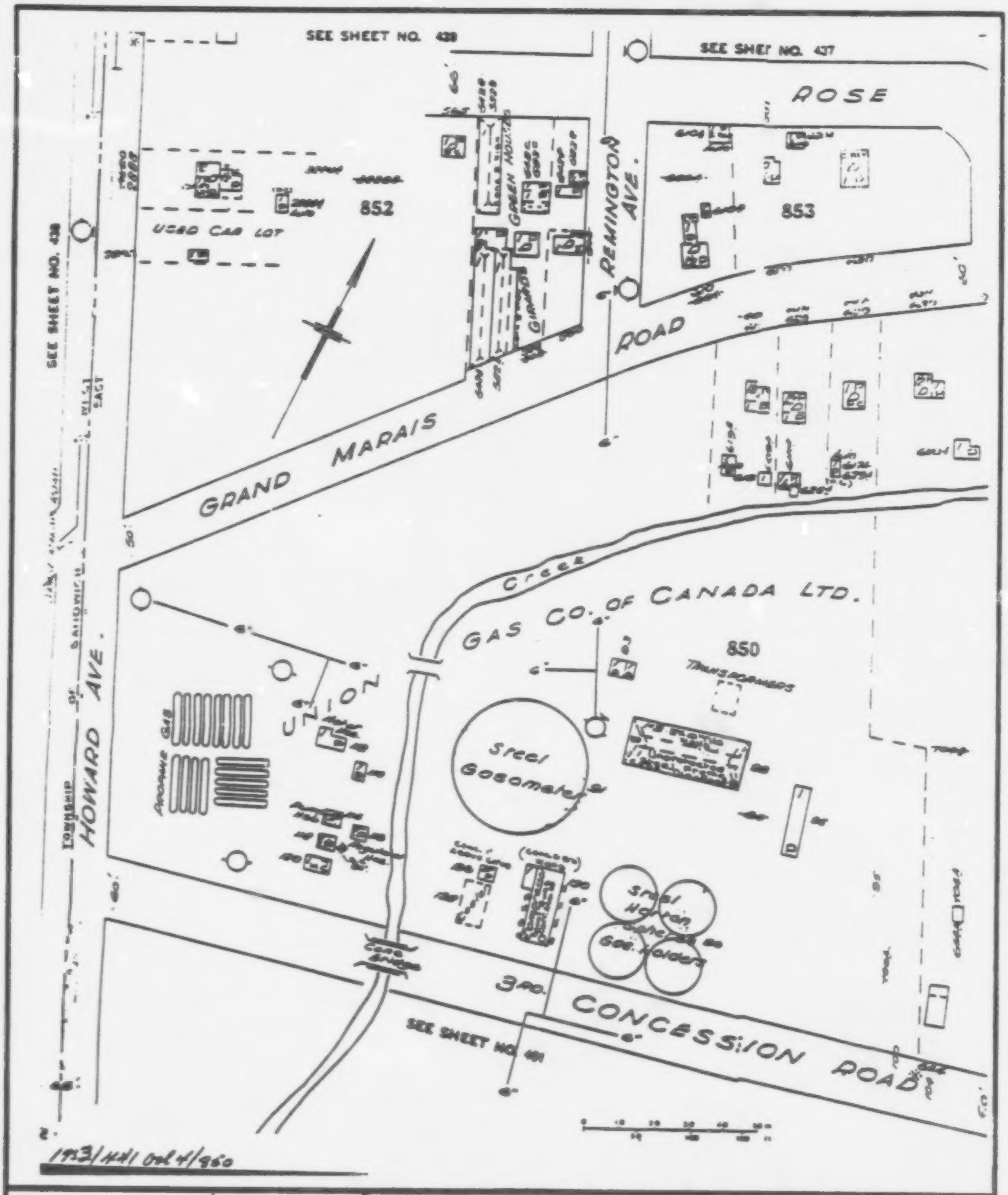
| Revisions | Date |

City of Windsor, showing location of Union Natural Gas Co. site.

INTERA Technologies


SEE SHEET NO. 439
SEE SHEET NO. 437
ROSE
852
853
USED CAR LOT
GREEN HOUSES
REMINGTON AVE.
GRAND MARAIS ROAD
SEE SHEET NO. 438
TOWNSHIP OF SANDWICH EAST
HOWARD AVE.
UNION GAS CO. OF CANADA LTD.
Creek
850
TRANSFORMERS
Propane Gas
Steel Gasometer
Steel Horton Spherical Gas Holders
Conc. Bridge
3RD. CONCESSION ROAD
SEE SHEET NO. 461

1953/441 Oct 4/950

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1953 Plan of Union Natural Gas Co. of Canada site, (Source: Fire Insurance Map, Public Archives Canada, NMC, sheet 441)

INTERA Technologies

# WOOD DISTILLATION PLANTS

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Deseronto Street Address Main St. between First & Second on Bay of Quinte

MOE Region Southeastern

MOE District Kingston NTS Map Sheet 31 C/3

Historical Maps and Photos Available 1898 fire insurance plan (Regional Collection, University of Western Ontario, sheet 3 and key); 1922 fire insurance plan (Public Archives Canada NMC 9401, sheet 2); 1931 air photo (NAPL A3252-40)

2. **Site Identification:**

Name E.W. Rathbun Co./Standard Chemical Co.

Type of Facility Wood distillation plant/charcoal oven by-product plant/wood tar distillation plant

Operator(s) and Period(s) of Operation Rathbun Co. (1889 - 1902); Standard Chemical Co. (1902 - 1920)

3. **Site Characteristics:**

Size (when operated) 1.0 hectare

Present Land Use light industrial (furniture/cabinetry factory) and residential

Planned Land Use Plans to build additional house on property

Present Occupant(s) Hawley Bros. Ltd.

Present Land Use Adjoining Properties North - residential; east - residential; west - vacant; south - Bay of Quinte

Underground Utilities Sanitary sewers along Main St.

Soil Conditions Fill/sand overlying bedrock at 0.7 m

Site Access Uncontrolled

4. **Evidence of Buried Wastes:**

Operating Period 1889 - 1920 (31 years)

Excavation History House excavation (1951) let sit for approx. 1 month to vent gases from soil

Visible Wastes None reported or observed

Odour See excavation history

Water Pollution None reported or observed

5. **Resource Characteristics:**

Surface Water Bay of Quinte/Lake Ontario

Proximity Borders south side of site

Use Recreational, industrial, water supply (distant)

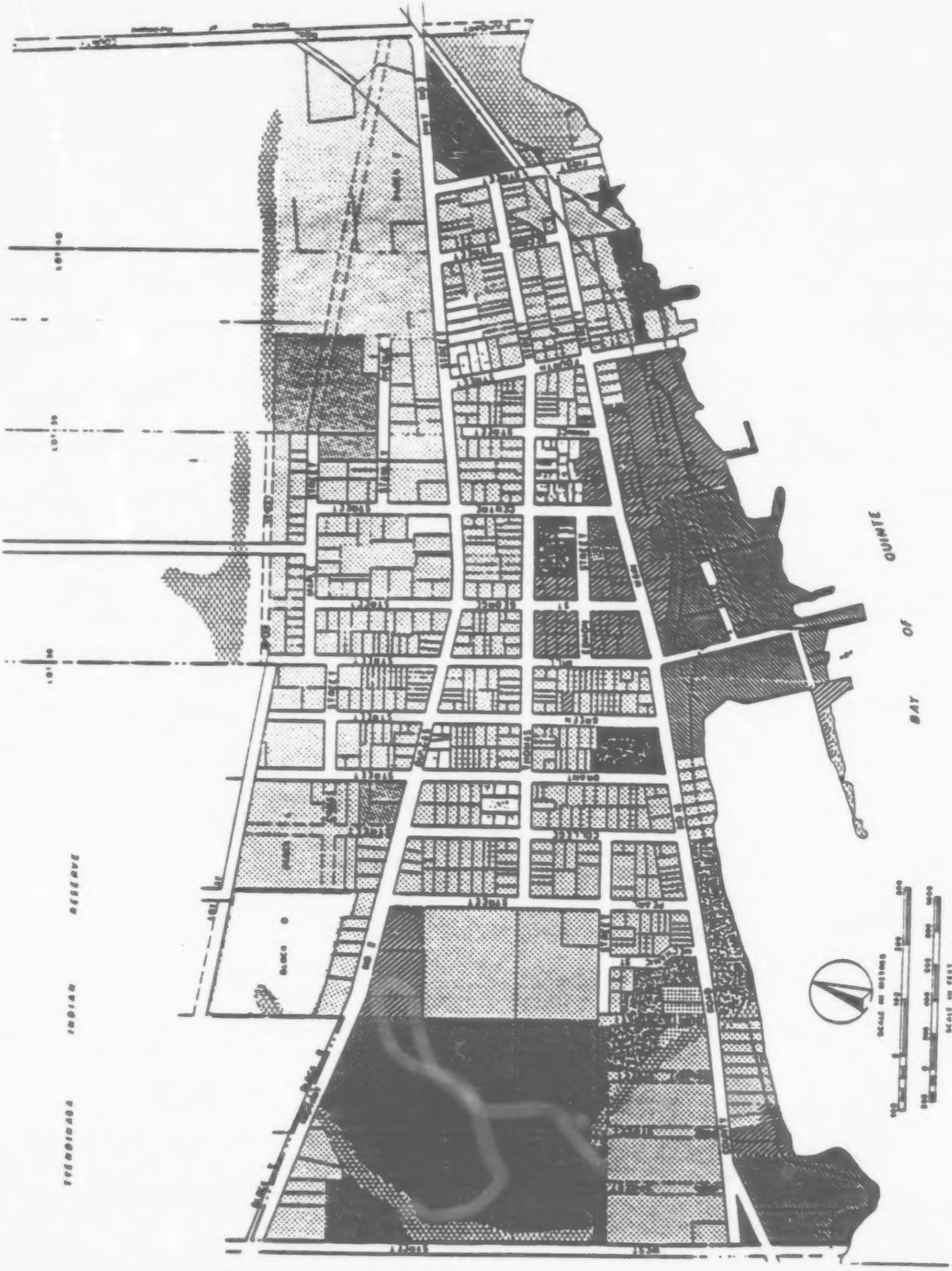
Groundwater, Proximity Unknown

Use None

Proximity of Existing Wells None reported

Site Investigations None reported

6. **Comments/Remarks:** Coal gasification plan remained on-site after end of chemical works. Standard Iron Co. also existed in Deseronto during same period utilitizing charcoal in blast furnaces; 1898 map shows tar distillation room and by-products plant


BAY OF QUINTE
TYENDINAGA INDIAN RESERVE

| | | |
|---|---|---|
| Drawn by | Date | Town of Deseronto, showing location of E.W. Rathbun/Standard Chemical Co. site. |
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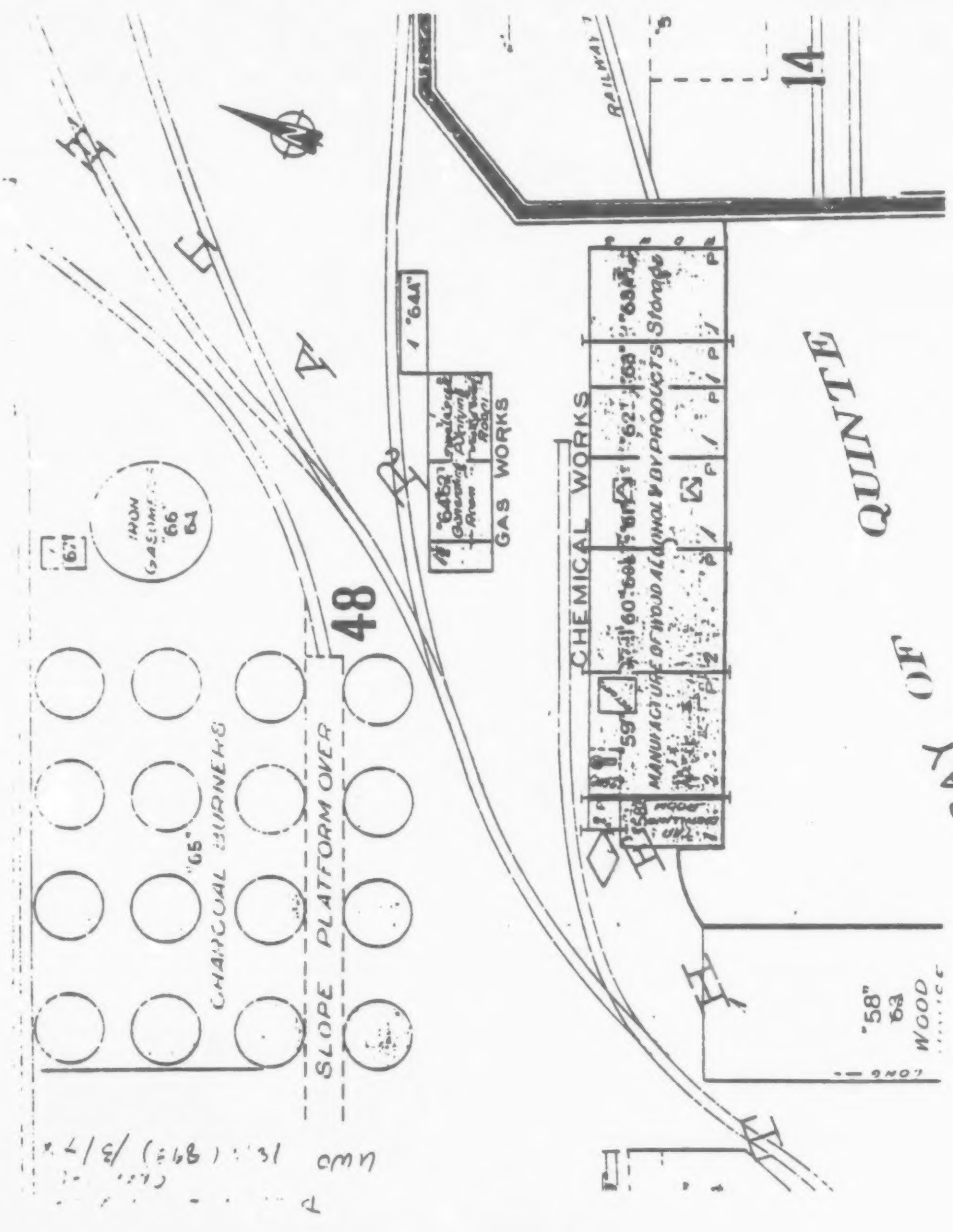
INTERA Technologies


CHARCOAL BURNERS
"65"
SLOPE PLATFORM OVER
48
IRON GASOMETER
"66"
64
GAS WORKS
"64A"
CHEMICAL WORKS
MANUFACTURE OF WOOD ALCOHOL & BY PRODUCTS
Storage
"59"
"60"
"62"
"63"
RAILWAY
14
BAY OF QUINTE
"58"
63
WOOD

| | |
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| Revisions | Date |

1898 Plan of E.W. Rathbun, Standard Chemical Co. site, (Source: 1898 Revision of 1893 Fire Insurance Map, Regional Collection, University of Western Ontario, sheet 3)

INTERA Technologies

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Donald Street Address Part Lot 6 and 7, Con. 1

MOE Region Central Twp. Dysart, County of Haliburton

MOE District Muskoka-Haliburton NTS Map Sheet 31 D/15

Historical Maps and Photos Available No maps available, 1944 air photo (NAPL A4832-83) shows layout of plant

2. **Site Identification:**

Name Donald Wood Products Ltd./Standard Chemical Co. Ltd.

Type of Facility Wood distillation plant

Operator(s) and Period(s) of Operation Donald Wood Products Ltd. (1908 - approx. 1915); Standard Chemical Ltd. Co. (1915 - 1945)

3. **Site Characteristics:**

Size (when operated) About 2 hectare

Present Land Use Vacant - recreational

Planned Land Use No development planned

Present Occupant(s) Vacant (property owned by Mr. J. Boyd)

Present Land Use Adjoining Properties North & south - residential; east & west - recreational

Underground Utilities None

Soil Conditions Unknown

Site Access Access limited by no trespassing signs and a broken fence

4. **Evidence of Buried Wastes:**

Operating Period 1908 - Dec. 1945

Excavation History None

Visible Wastes Cinders, ash, charcoal and tar; tar patches adjacent to river

Odour Wood alcohol smell at several locations around the site; slight creosote odour near the tar patches

Water Pollution Phenol contamination detected in domestic well

5. **Resource Characteristics:**

Surface Water Burnt River

Proximity Adjacent to site

Use Recreational, water supply

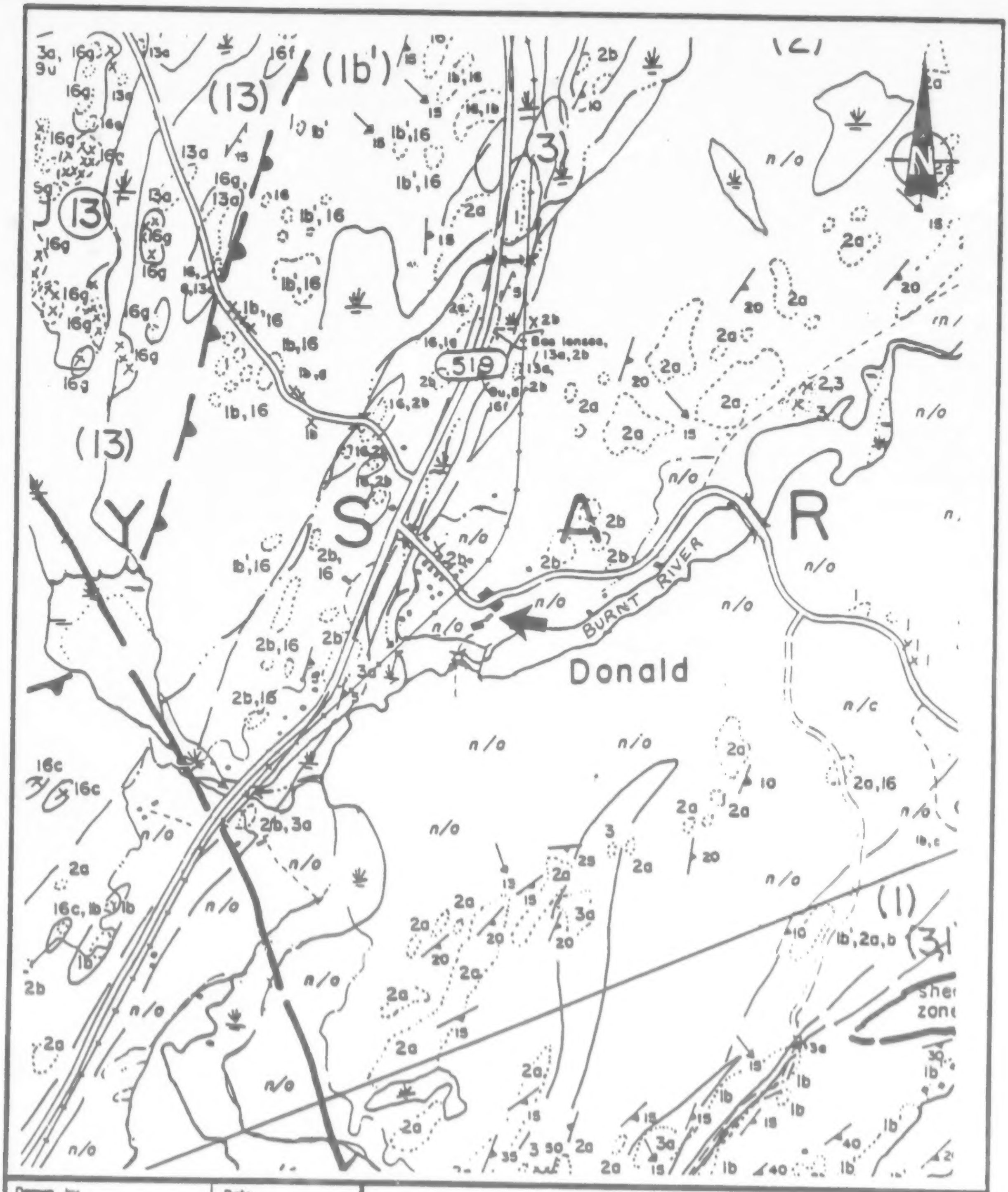
Groundwater, Proximity In bedrock

Use Domestic water supply

Proximity of Existing Wells Domestic well adjacent to site abandoned due to contamination

Site Investigations MOE investigation of residual contamination completed in 1983

6. **Comments/Remarks:** Concrete frame of original buildings still standing on-site. Tar patches observed adjacent to River. MOE (1983) - phenol contamination in groundwater; PAH contamination in soil.


(13)
(1b')
(13)
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Y
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R
Donald
BURNT RIVER
519
n/o
2a
2b
1b,16
1b',16
16g
13a
16c
2b,16
2b,3a
3a
20
15
10
Bas lenses, 13a,2b
2a,16
1b,2a,b
shear zone
N

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Donald Area, showing location of Donald Wood Products site, (Source: Ontario Geologic Survey Map, P.3071)

INTERA Technologies

## Fact Sheet for Survey of Industrial Sites

### 1. Site Location:

City Fenelon Falls

Street Address Garnet Graham Lakeside Park
at west end of Francis St.
between Bond and Francis St.

MOE Region Central

MOE District Peterborough

NTS Map Sheet 31 D/10

Historical Maps and Photos Available 1910 fire insurance plan (Regional Collection, University of Western Ontario, Key and Sheet 1); 1965 air photo (NAPL A18773-32)

### 2. Site Identification:

Name Standard Chemical Co. Ltd.

Type of Facility Wood distillation plant

Operator(s) and Period(s) of Operation Standard Chemical Co. Ltd. (c1903 to 1912-16)

### 3. Site Characteristics:

Size (when operated) Approx. 1 hectare

Present Land Use Town park (Garnet Graham Lakeside Park); MOE water treatment plant

Planned Land Use Same

Present Occupant(s) Town of Fenelon Falls Park
MOE water treatment plant

Present Land Use Adjoining Properties North - parkland; east - residential; south - parkland; west - Cameron Lake

Underground Utilities Watermains run from treatment plant; storm sewer outfall at Bond Street

Soil Conditions Unknown

Site Access Uncontrolled

4. **Evidence of Buried Wastes:**

Operating Period 9 to 13 years (1903 to 1912-16)

Excavation History None reported

Visible Wastes Occasional evidence of cinders

Odour None observed or reported

Water Pollution Rust staining in Lakeshore adjacent to MOE Treatment plant but may not be attributable to chemical plant

5. **Resource Characteristics:**

Surface Water Cameron Lake - west; Fenelon River - south

Proximity Adjacent to site

Use Water supply, recreational

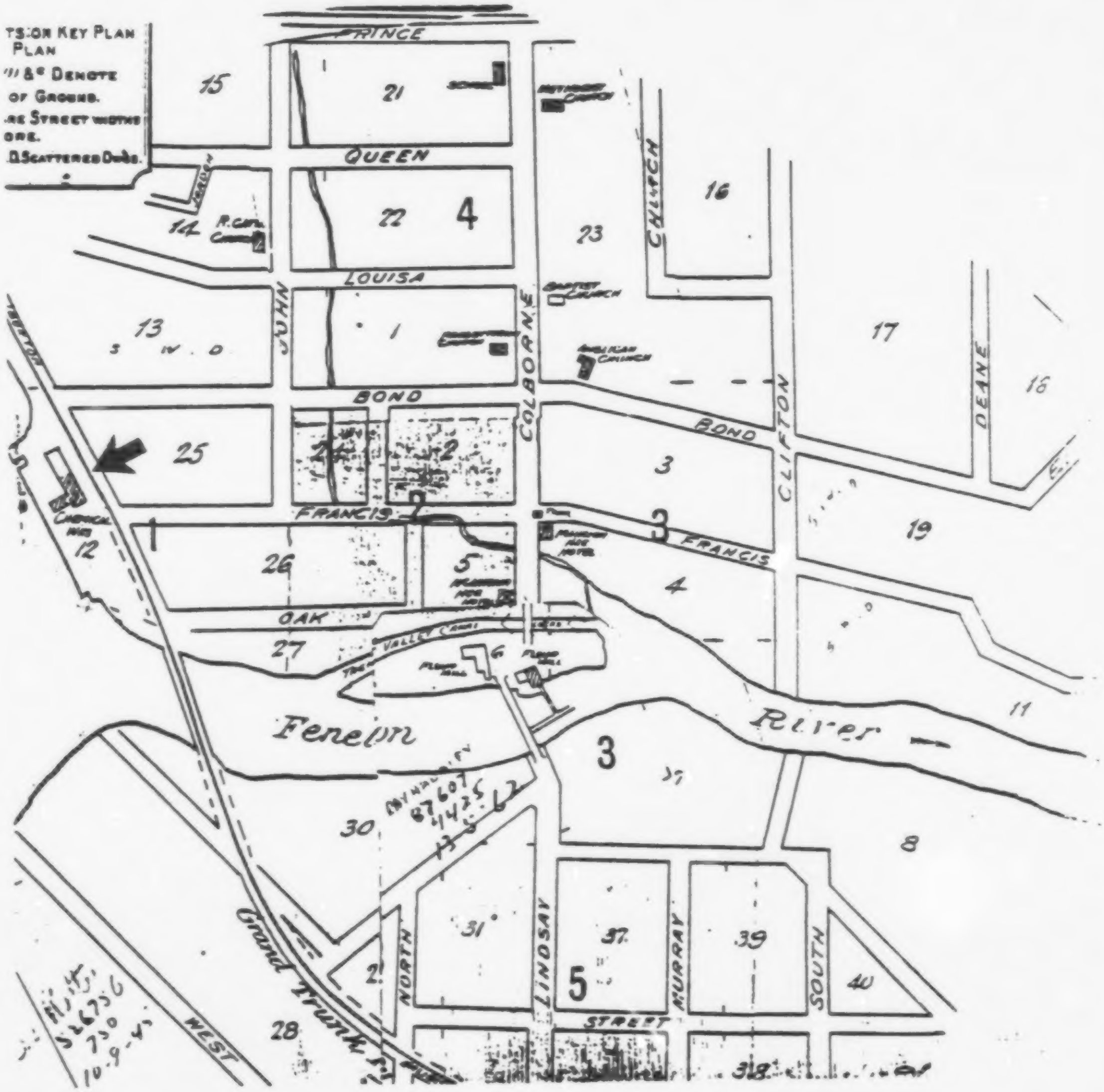
Groundwater, Proximity Unknown

Use Not used (?)

Proximity of Existing Wells Unknown

Site Investigations None reported

6. **Comments/Remarks:** Park area, presently landscaped, no evidence of former chemical plant. Off-site disposal areas unknown


TS:OR KEY PLAN
PLAN
DENOTE
OF GROUND.
RE STREET WIDTHS
ORE.
D SCATTERED DWGS.
PRINCE
QUEEN
LOUISA
BOND
FRANCIS
OAK
JOHN
COLBORNE
CHURCH
CLIFTON
DEANE
NORTH
LINDSAY
MURRAY
SOUTH
STREET
WEST
Grand Trunk R.
Fenelon River
CHEMICAL WKS
SCHOOL
METHODIST CHURCH
R. CATH. CHURCH
BAPTIST CHURCH
ANGLICAN CHURCH
15
21
22
23
16
14
13
1
17
18
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2
3
19
12
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39
40
8
28
87607
4435
17.5.62
52675
730
10.9.45

| | | |
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| Drawn by | Date | Village of Fenelon Falls, showing location of Standard Chemical Co. site. |
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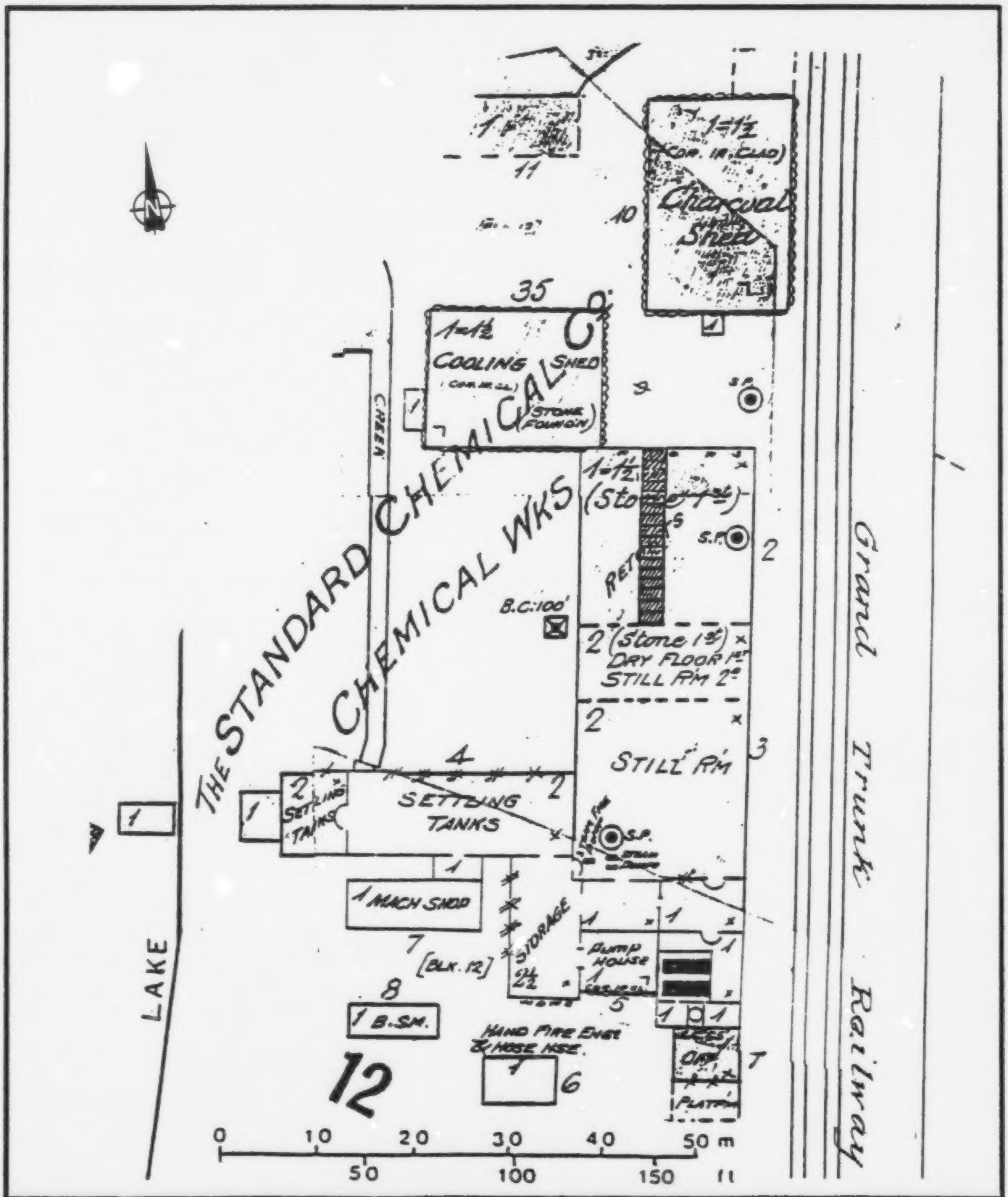
| INTERA Technologies | | |


N
THE STANDARD CHEMICAL CO.
CHEMICAL WKS
1-1½ (COR. IR. CLAD) Charcoal Shed
1-1½ COOLING SHED (COR. IR. CL.) (STONE FOUND'N)
1-1½ (Stone 1st) RETORTS
2 (Stone 1st) DRY FLOOR 1st STILL RM 2d
2 STILL RM
SETTLING TANKS
SETTLING TANKS
1 MACH. SHOP
STORAGE
PUMP HOUSE
1 B.SM.
HAND FIRE ENG. & HOSE HSE.
OFF.
PLATFM
S.P.
B.C.:100'
GREEN
LAKE
Grand Trunk Railway
35
11
10
4
2
3
7
8
5
6
12
[BLK. 12]
0 10 20 30 40 50 m
50 100 150 ft

| | | |
|---|---|---|
| Drawn by | Date | 1910 Plan of Standard Chemical Co. site, Fenelon Falls, (Source: Fire insurance plan, Regional Collection, University of Western Ontario, sheet 1) |
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| | | |
| INTERA Technologies | | |

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Lindsay Street Address 30 Eglington St. at the Scugog

MOE Region Central River

MOE District Peterborough NTS Map Sheet 31 D/7

Historical Maps and Photos Available 1949 fire insurance plan (Public Archives Canada, NMC 9522, sheets 1 and 25); 1959 air photo (NAPL A16868-153)

2. **Site Identification:**

Name Canadian Industrial Alcohol Co. Ltd.

Type of Facility Wood distillation plant

Operator(s) and Period(s) of Operation Canadian Industrial Alcohol Co. Ltd. (approx. 1930 to 1950)

3. **Site Characteristics:**

Size (when operated) 7.6 hectare

Present Land Use Vacant (subdivision under construction)

Planned Land Use Subdivision single family homes

Present Occupant(s) Presently unoccupied

Present Land Use Adjoining Properties North - commercial; west - residential; south - residential; east - recreational

Underground Utilities None

Soil Conditions Clay to depth of 2 m

Site Access Uncontrolled

4. **Evidence of Buried Wastes:**

Operating Period Approx. 1930 - 1950 (20 years)

Excavation History Test pits on-site and earth moving as part of subdivision construction

Visible Wastes Lime wastes, cinders, ash, charcoal exposed in test pits and earth moving

Odour Wood alcohol odour on-site adjacent to waste areas

Water Pollution None reported or observed

5. **Resource Characteristics:**

Surface Water Scugog River at east boundary

Proximity Adjacent

Use Recreational, water supply (upstream)

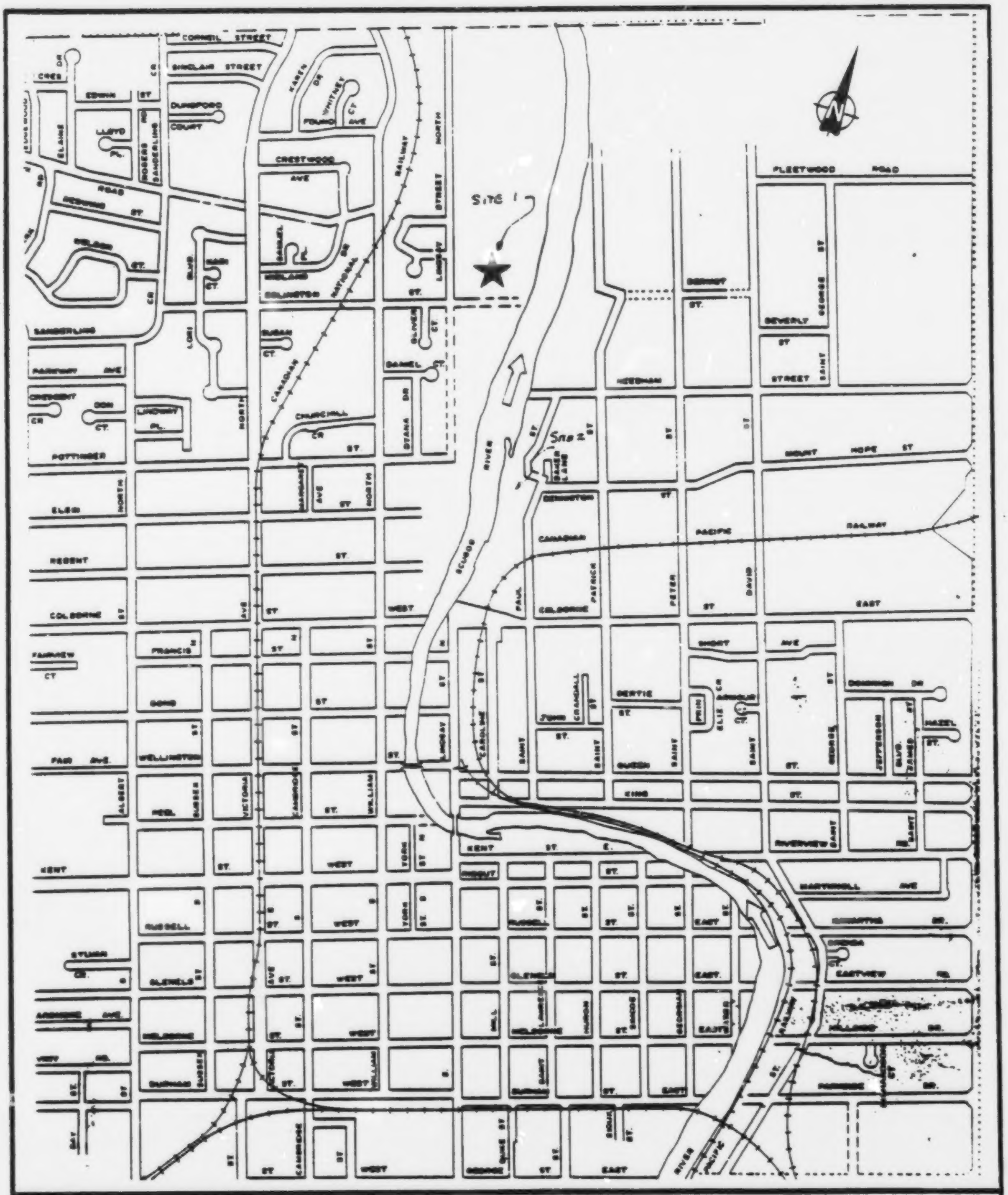
Groundwater, Proximity Unknown

Use Not used

Proximity of Existing Wells Unknown

Site Investigations Geotechnical investigations underway. Gabion wall constructed lat rivers edge

6. **Comments/Remarks:** Subdivision construction has uncovered buried wastes from the plant; at least 1 m thickness in places. Large steel tank remains on-site. Disposal areas most likely on-site adjacent to the river.


SITE 1
SITE 2
N
CORNWALL STREET
SINCLAIR STREET
EDWIN ST
DUNSFORD COURT
LLOYD PL.
ELAINE
ROGERS RD
SANDERLING
KAREN DR
WHITNEY CT
POUND CT
CRESTWOOD AVE
RAILWAY
NORTH STREET
REDWING ST
NELSON ST
ORCHARD PARK
COLBORNE
LINDSAY
SANDERLING
PARKWAY AVE
CRESCENT CR
DON CT
LINDSAY PL.
POTTINGER
CANADIAN NATIONAL
SUSAN CT
OLIVER CT
DANIEL CT
CHURCHILL CR ST
DYANA DR
LORI
NORTH
DERMOT ST
BEVERLY ST
GEORGE ST
STREET SAINT
NEEDHAM
FLEETWOOD ROAD
MOUNT HOPE ST
ELGIN
REGENT ST
MARGARET AVE
ST NORTH
SCUGOG RIVER
DENNISTON ST
CANADIAN PACIFIC RAILWAY
COLBORNE ST
PAUL
PATRICK
PETER
DAVID
EAST
WEST
FAIRVIEW CT
FRANCIS ST
BOND ST
WELLINGTON ST
FAIR AVE.
SHORT AVE
DOMINION DR
ARMOUR
HAZEL
JEFFERSON BLVD.
JAMES ST
BERTIE ST
JOHN
CRANDALL
QUEEN
SAINT
CAROLINE
ALBERT
PEEL
SUSSEX
VICTORIA
CAMBRIDGE
WILLIAM
KING
KENT ST
YORK
RIVERVIEW
MARYKNOLL AVE
RUSSELL
GLENELG
MELBOURNE
DURHAM
ARMSTRONG AVE
STUART CR.
IRENE
MILL
HURON
SIMCOE
GEORGIAN
EASTVIEW RD.
HILLCROFT DR.
PARKSIDE DR.
GEORGE
RIVER
PACIFIC
BAY

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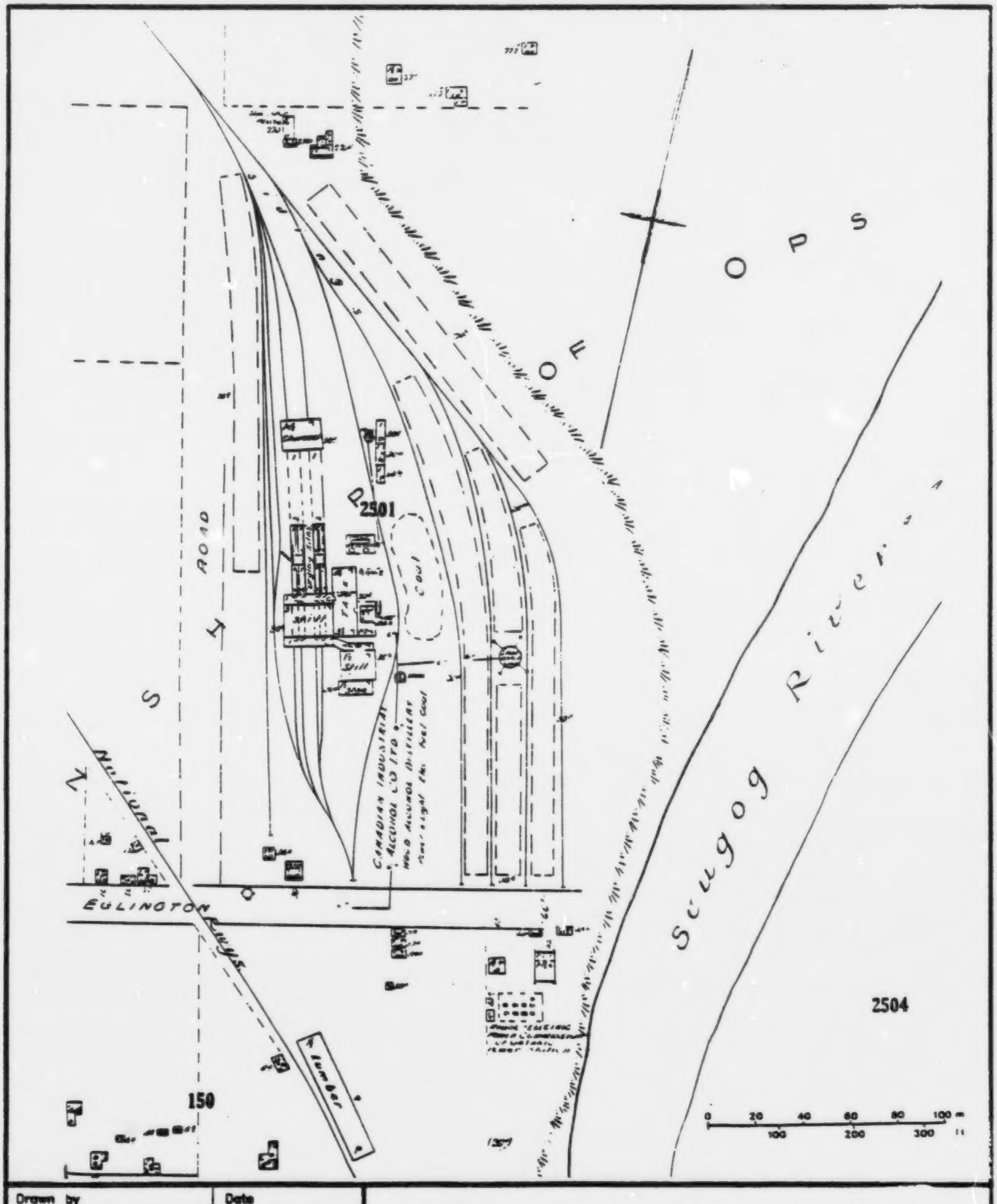
Town of Lindsay, showing location of Canadian Industrial Alcohol Co. Ltd. site.

INTERA Technologies


O P S
OF
Scugog River
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ROAD
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EGLINGTON
Coal
Still
CANADIAN INDUSTRIAL ALCOHOL CO LTD
Wood Alcohol Distillery
Lumber
0 20 40 60 80 100 m
100 200 300

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1949 Plan of Canadian Industrial Alcohol Co. Ltd. site (Source: Fire Insurance Map, Public Archives Canada, NMC-9522, sheet 25)

INTERA Technologies

# Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Lindsay

Street Address St. Paul Street, west of Denniston St. at Scugog River

MOE Region Central

MOE District Peterborough

NTS Map Sheet

Historical Maps and Photos Available 1928 revision of 1920 fire insurance plan (Ontario Archives, sheet 19); 1968 air photo (NAPL A18773-25)

2. **Site Identification:**

Name Hodgson Bros. Chemical Co. Ltd.

Type of Facility Wood distillation plant

Operator(s) and Period(s) of Operation Hodgson Bros. Chemical Co. Ltd. 1919 - 1930s

3. **Site Characteristics:**

Size (when operated) 1.2 hectare

Present Land Use Parkland

Planned Land Use Continued parkland

Present Occupant(s) City owned park

Present Land Use Adjoining Properties North, south & east - residential; west - Scugog River

Underground Utilities Storm sewer outfall at centre of site and ditch to river

Soil Conditions Unknown

Site Access Uncontrolled

4. **Evidence of Buried Wastes:**

Operating Period 1919 to 1928 or 1939 (10 - 20 years)

Excavation History Storm sewer excavation to centre of site in 1965

Visible Wastes Cinders, ash, and charcoal visible in a number of locations

Odour None reported or observed

Water Pollution None reported or observed

5. **Resource Characteristics:**

Surface Water Scugog River

Proximity West boundary of the site

Use Recreational, water supply upstream

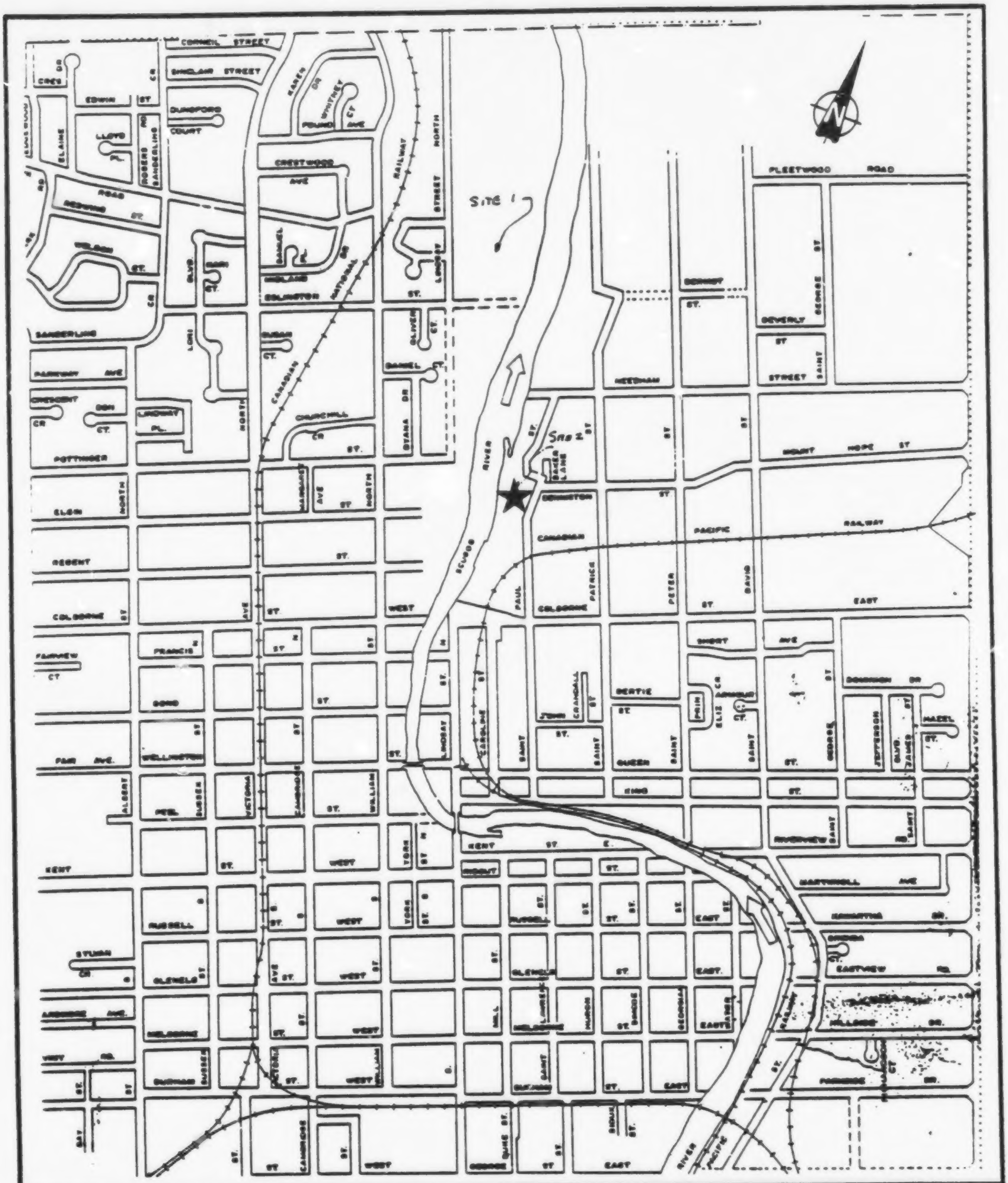
Groundwater, Proximity Unknown

Use Unknown probably not used

Proximity of Existing Wells Unknown

Site Investigations None reported

6. **Comments/Remarks:** Demolished building remains on-site


N
SITE 1
SITE 2
SCUGOG RIVER
CANADIAN NATIONAL RAILWAY
CANADIAN PACIFIC RAILWAY
CORNEIL STREET
SINCLAIR STREET
EDWIN ST
DUNSFORD COURT
LLOYD PL.
CRESTWOOD AVE
REDWING ST.
ROAD
COLLINGTON ST.
SANDERLING
PARKWAY AVE
CRESCENT CR
DON CT.
LINDWAY PL.
CHURCHILL CR ST.
DYANA DR
POTTINGER
NORTH STREET
FLEETWOOD ROAD
GEORGE ST
BEVERLY ST
NEEDHAM
MOUNT HOPE ST
DENNISTON ST
ELGIN
REGENT ST.
COLBORNE ST WEST
COLBORNE ST EAST
PAUL
PATRICK
PETER
DAVID
FRANCIS
FAIRVIEW CT
BOND ST.
WELLINGTON ST
FAIR AVE.
SHORT AVE
DOMINION DR
BERTIE ST
JOHN ST
CRANDALL
QUEEN
SAINT
KING ST.
JEFFERSON
HAZEL ST.
RIVERVIEW RD.
PEEL ST.
ALBERT
SUSSEX
VICTORIA
CAMBRIDGE
WILLIAM
YORK ST N
LINDSAY ST.
CAROLINE
KENT ST WEST
KENT ST E.
MCDOUGALL
MARTINDALE AVE
KAWARTHA DR.
RUSSELL ST WEST
RUSSELL ST EAST
EASTVIEW RD.
GLENELG ST WEST
GLENELG ST EAST
ARDMORE AVE.
MELBOURNE ST WEST
MELBOURNE ST EAST
HILLSIDE DR.
DUFFERIN ST WEST
DUFFERIN ST EAST
PARKSIDE DR.
HUGHES CT
GEORGE ST WEST
GEORGE ST EAST
HURON
SIMCOE
ANGELINE
MILL
LAWRENCE
SIDNEY ST.
DUKE ST.

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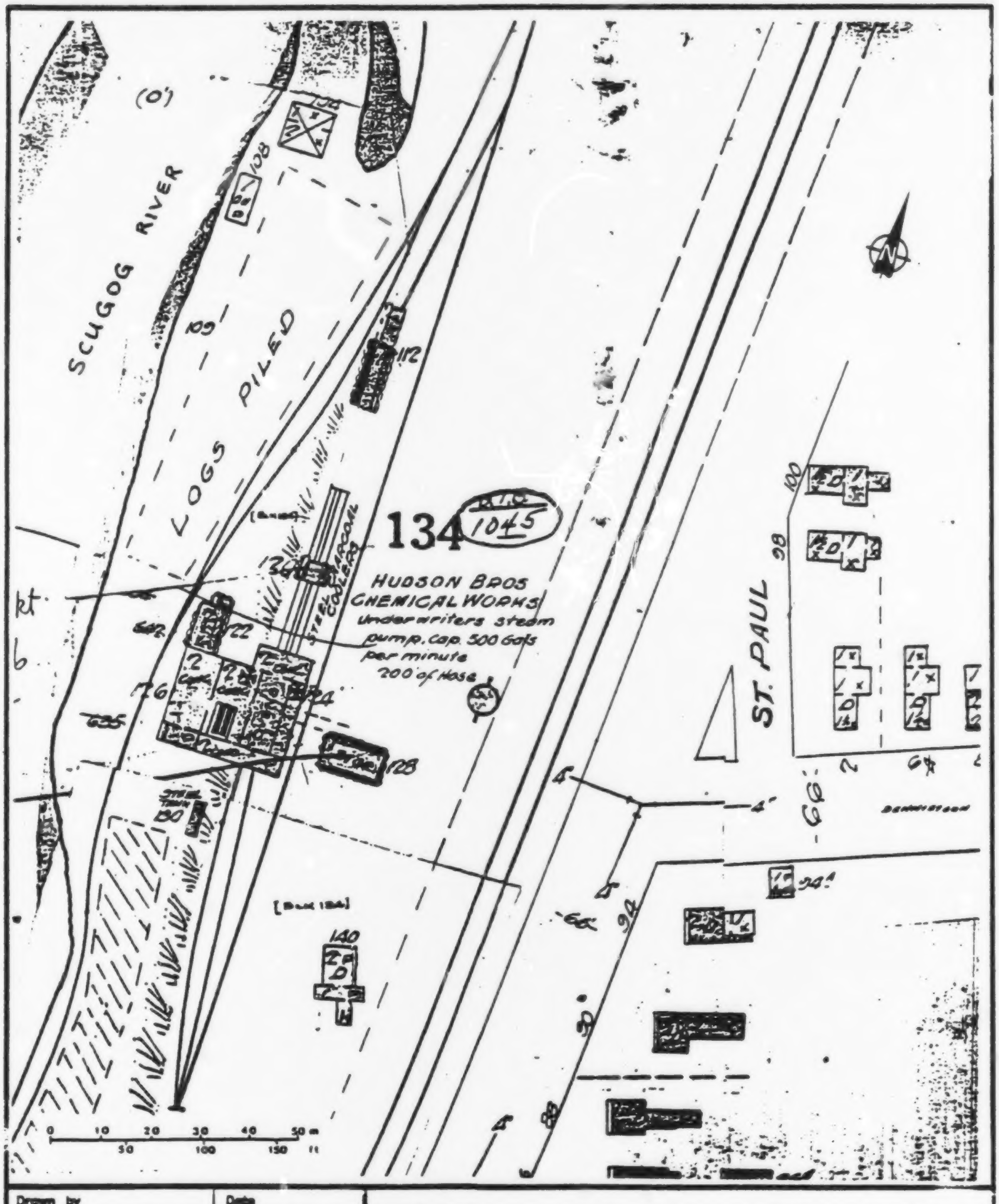
Town of Lindsay, showing location of Hodgson Bros. Chemical Co. Ltd. site.

INTERA Technologies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LOGS PILED
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109
112
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HUDSON BROS
CHEMICAL WORKS
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pump. cap. 500 Gals
per minute
200' of Hose
STEEL VAPOUR COOLERS
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| | |

1928 Plan of Hodgson Bros. Chemical Co. Ltd. site, (Source: 1928 Revision of 1920 Fire Insurance Map, Ontario Archives, sheet 19)

INTERA Technologies

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Longford Mills

Street Address Longford Rd. (Lot 20, Broken Frontage, Rama Township)

MOE Region Central

MOE District Barrie

NTS Map Sheet 31 D/11

Historical Maps and Photos Available Maps available, 1978 airphoto (NAPL 2483-48)

2. **Site Identification:**

Name Standard Chemical, Iron and Lumber Co.

Type of Facility Wood distillation plant

Operator(s) and Period(s) of Operation Standard Chemical Co. (early 1900s - 1943)

3. **Site Characteristics:**

Size (when operated) Approx. 1 hectare

Present Land Use Domtar Specialty Chemicals Division (industrial)

Planned Land Use Same

Present Occupant(s) Domtar Specialty Chemicals Division

Present Land Use Adjoining Properties West - residential; east - Lake St. John; south - vacant; north - vacant/rural

Underground Utilities Gas mains along Longford Rd. to plant

Soil Conditions Approximately 5 - 7 m of overburden overlying limestone

Site Access Chemical plant is fenced with controlled access

4. **Evidence of Buried Wastes:**

Operating Period 1900s - 1943 (43 years)

Excavation History Unknown

Visible Wastes Cinders, ash and charcoal visible in the soils surrounding the site

Odour Occasional wood alcohol odour in area of exposed wastes

Water Pollution None reported or observed

5. **Resource Characteristics:**

Surface Water Lake St. John

Proximity Adjacent to site eastern boundary

Use Recreational (water supply for Domtar?)

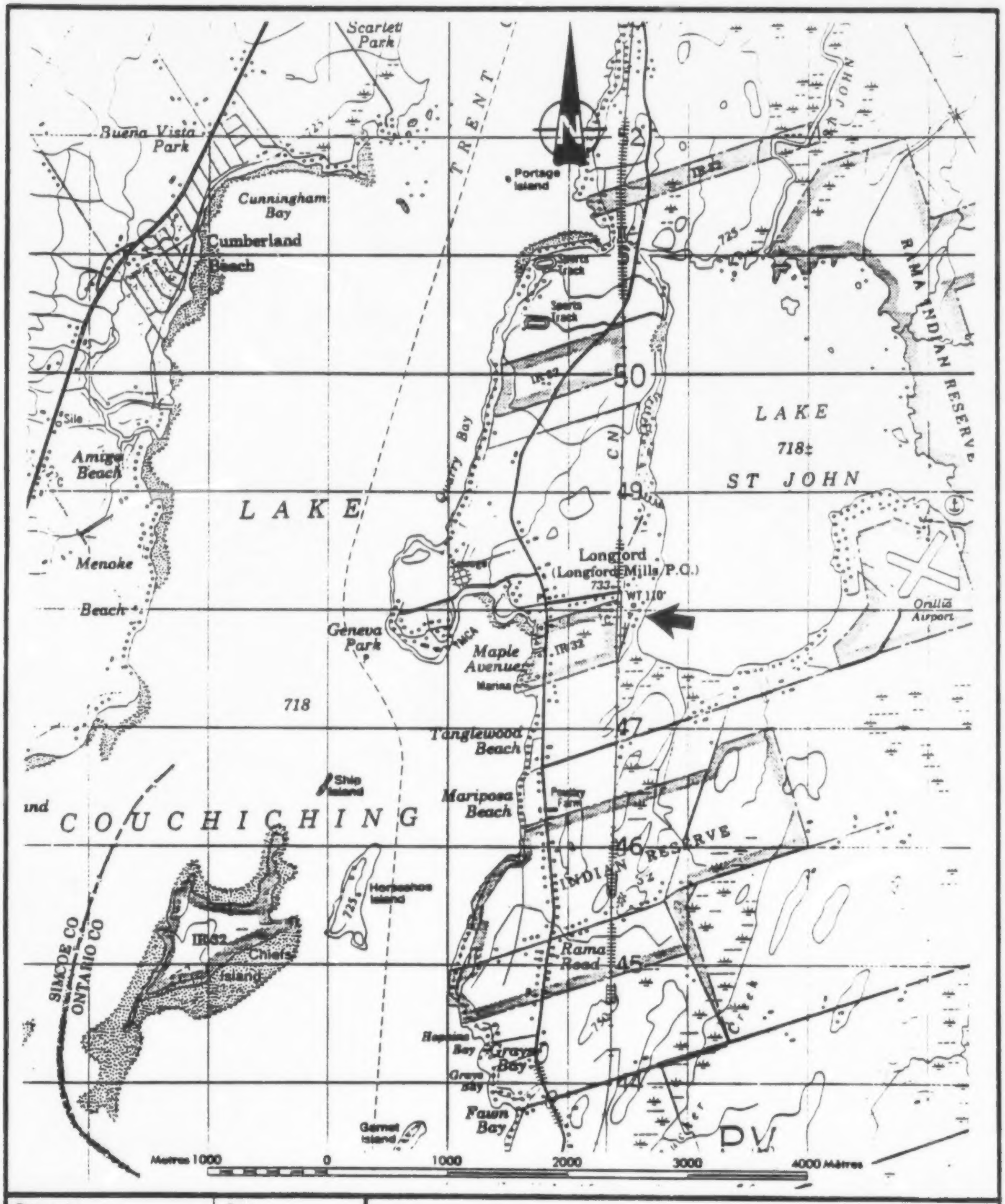
Groundwater, Proximity Unknown

Use Drinking water supply

Proximity of Existing Wells Individual wells for residences 300 m west of site

Site Investigations None reported

6. **Comments/Remarks:** Presently an operating chemical plant; off-site waste disposal areas unknown, likely on-site


Scarlett Park
Buena Vista Park
Cunningham Bay
Cumberland Beach
TRENT
Portage Island
Sports Track
IR 32
50
LAKE
718±
ST JOHN
RAMA INDIAN RESERVE
CN
49
Quarry Bay
Amiga Beach
LAKE
Menoke Beach
Longford (Longford Mills P.O.)
733
WT 110'
Orillia Airport
Geneva Park
YMCA
Maple Avenue
Marina
718
Tanglewood Beach
47
Ship Island
Mariposa Beach
Poultry Farm
COUCHICHING
46
INDIAN RESERVE
Horseshoe Island
725
IR 32
Chiefs Island
SIMCOE CO
ONTARIO CO
Rama Road
45
Creek
Hopkins Bay
Grays Bay
Fawn Bay
Garnet Island
725
750
Metres 1000
0
1000
2000
3000
4000 Metres

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Longford Mills area showing location of Standard Chemical Co. site, (Source: Orillia, 1:50,000 map, sheet 31-D/11)

INTERA Technologies

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Parry Sound

Street Address 300 m north of Isabella between railway tracks and Georgian Bay

MOE Region Northeastern

MOE District North Bay

NTS Map Sheet

Historical Maps and Photos Available 1924 Fire insurance Plan (Ontario Archives Parry Sound key and sheet 18); 1927 air photo (NAPL HA386-35)

2. **Site Identification:**

Name Standard Chemical Co.

Type of Facility Wood distillation plant, charcoal oven by-product plant

Operator(s) and Period(s) of Operation Algoma Lumber and Chemical Co. (1909 - 1912); Standard Chemical Co. (1912 - 1924)

3. **Site Characteristics:**

Size (when operated) Approx. 2 - 3 hectare

Present Land Use Vacant, unused

Planned Land Use Same

Present Occupant(s) Wm. Beatty Lands and Timber

Present Land Use Adjoining Properties North, south, and east - rural unused vacant land; west - Georgian Bay

Underground Utilities None

Soil Conditions Unknown - bedrock near surface

Site Access Uncontrolled

4. **Evidence of Buried Wastes:**

Operating Period 1909 - 1924 (15 years)

Excavation History Unknown

Visible Wastes Cinders and ash visible on-site

Odour None reported or observed

Water Pollution None reported or observed

5. **Resource Characteristics:**

Surface Water Georgian Bay

Proximity Approx. 100 m west

Use Recreational

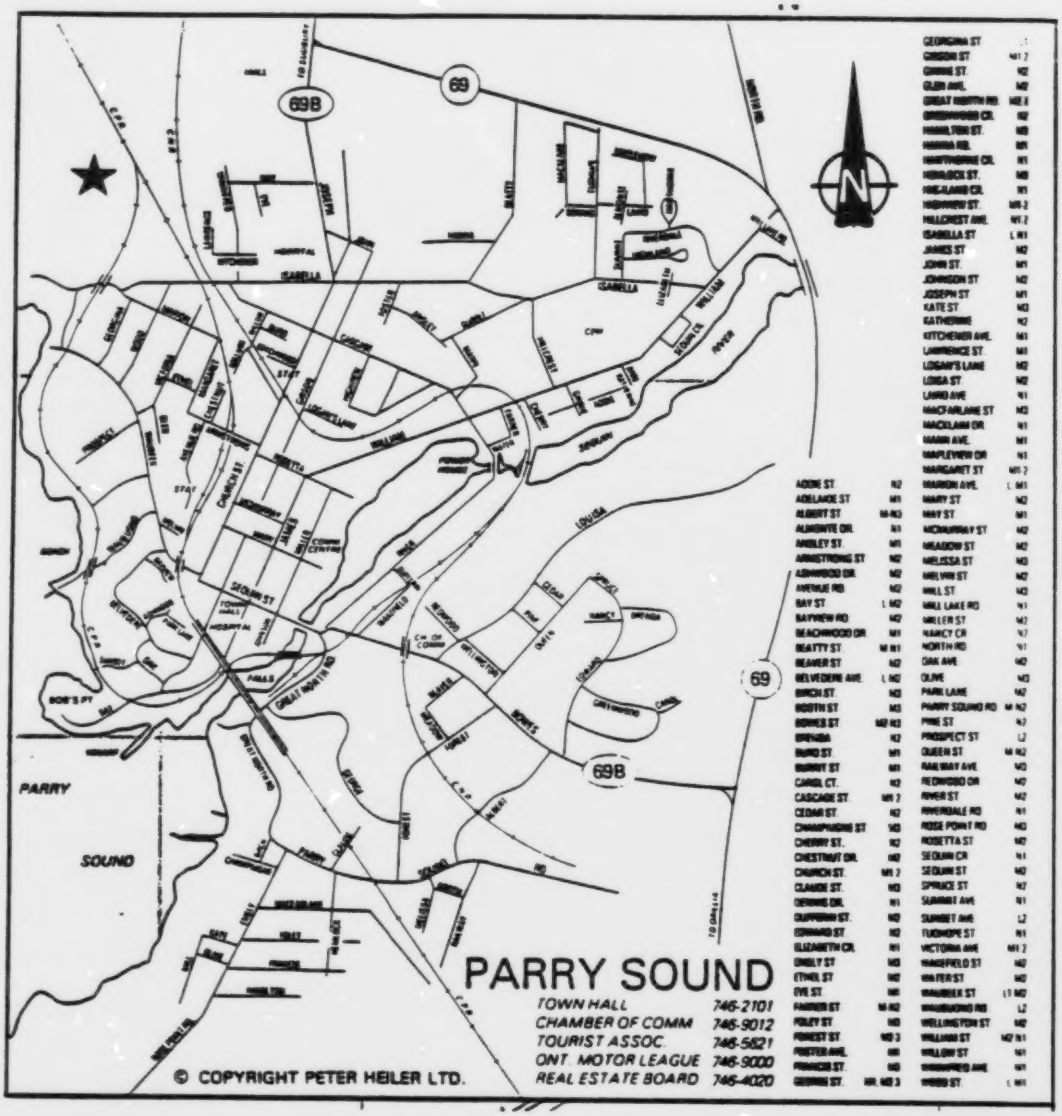
Groundwater, Proximity Not reported or observed

Use Not reported or observed

Proximity of Existing Wells Unknown

Site Investigations Unknown

6. **Comments/Remarks:** Ruins of former buildings still exist today


PARRY SOUND
TOWN HALL 746-2101
CHAMBER OF COMM 746-9012
TOURIST ASSOC. 746-5821
ONT. MOTOR LEAGUE 746-9000
REAL ESTATE BOARD 746-4020
PARRY
SOUND
69
69B
N

© COPYRIGHT PETER HEILER LTD.

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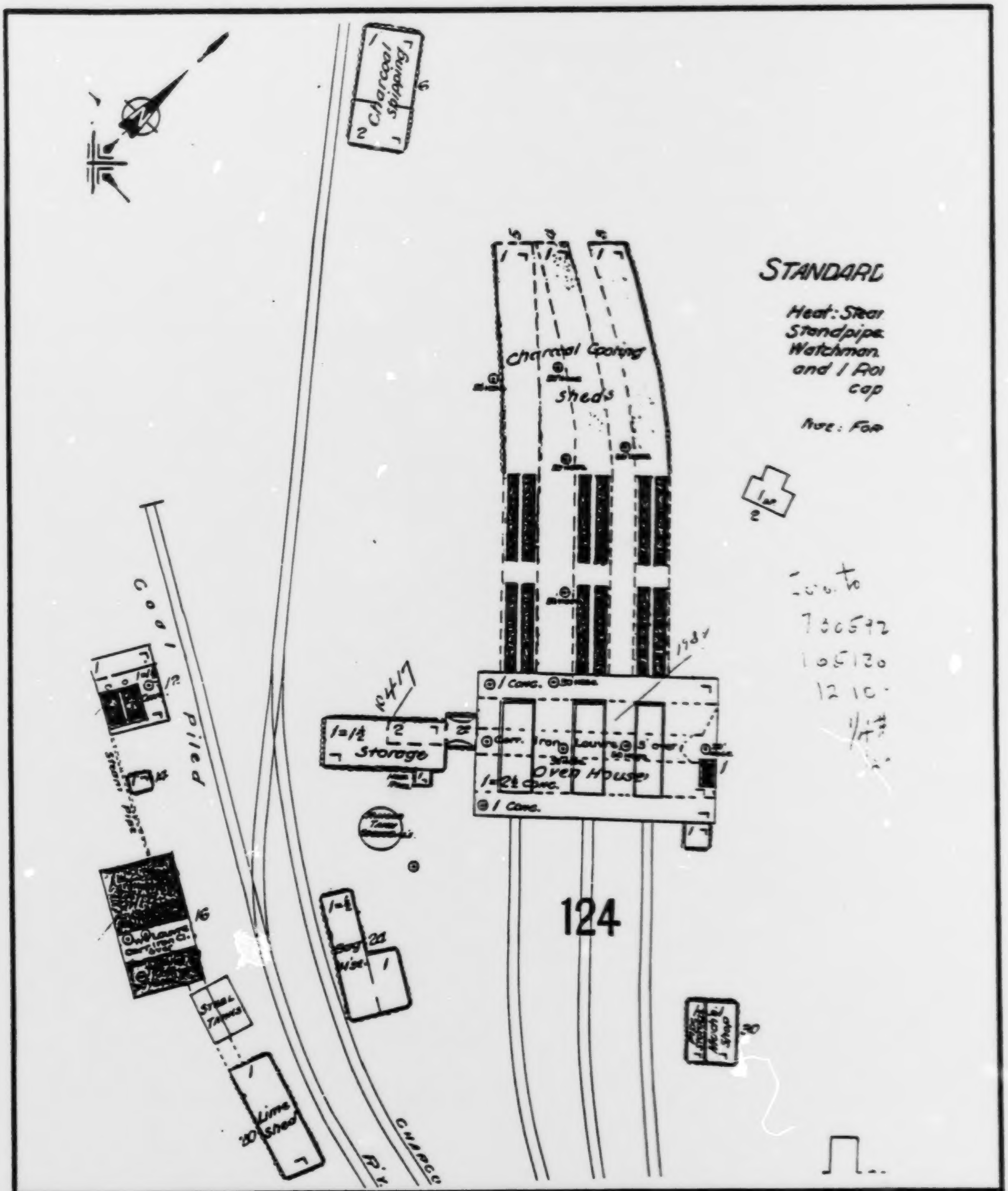
Town of Parry Sound, showing location of Standard Chemical Co. site.

INTERA Technologies


Charcoal Shipping
2
STANDARD
Heat: Stea
Standpipe
Watchman
and 1 Ro
cap
Fuel: For
Charcoal Cooling
Sheds
1=1½
2
Storage
R417
1984
1 Conc.
Corr. Iron Louvre
Oven House
1=2½ Conc.
1 Conc.
124
Coal
Piled
Lime
Shed
Steel
Tanks
16
1=½
21
30
Shop
Chapeco
Riv.

| | | |
|---|---|---|
| Drawn by | Date | 1924 Plan of Standard Chemical Co. site, Parry Sound, (Source: 1924 revision of 1917 Fire insurance plan, Ontario Archives, sheet 18) |
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| Revisions | Date | |
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| INTERA Technologies | | |

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Sault Ste. Marie

Street Address Western end of Queen St. at St. Mary's River, Sault Ste. Marie

MOE Region Northeastern

MOE District Sault Ste. Marie

NTS Map Sheet 41 K/9

Historical Maps and Photos Available 1919 Town plan; 1925 fire insurance plan (sheet 30) (Both from Sault Ste. Marie Public Library); 1939 air photo (NAPL A5634-68)

2. **Site Identification:**

Name Algoma Steel Corp./Standard Chemical Co.

Type of Facility Charcoal by-product plant, then wood distillation plant

Operator(s) and Period(s) of Operation Algoma Steel Co. Ltd. (1900 - 1912); Standard Chemical, Iron and Lumber Co./Standard Chemical Co. (1912 - 1926)

3. **Site Characteristics:**

Size (when operated) 3.3 hectare

Present Land Use Algoma Steel Mill Complex

Planned Land Use Same

Present Occupant(s) Algoma Steel Corp.

Present Land Use Adjoining Properties North - industrial; east - industrial; west - industrial; south - St. Mary's River

Underground Utilities Unknown

Soil Conditions Sand overlying clay overlying silt overlying silty sand till overlying bedrock

Site Access Controlled, limited access

4. **Evidence of Buried Wastes:**

Operating Period 1900 - 1926 (26 years)

Excavation History Unknown

Visible Wastes Unknown

Odour Coal tar odours associated with Algoma Coke Ovens

Water Pollution None reported which are solely attributable to the wood distillation plant (see remarks)

5. **Resource Characteristics:**

Surface Water St. Mary's River

Proximity Adjacent to the site

Use Recreational, industrial

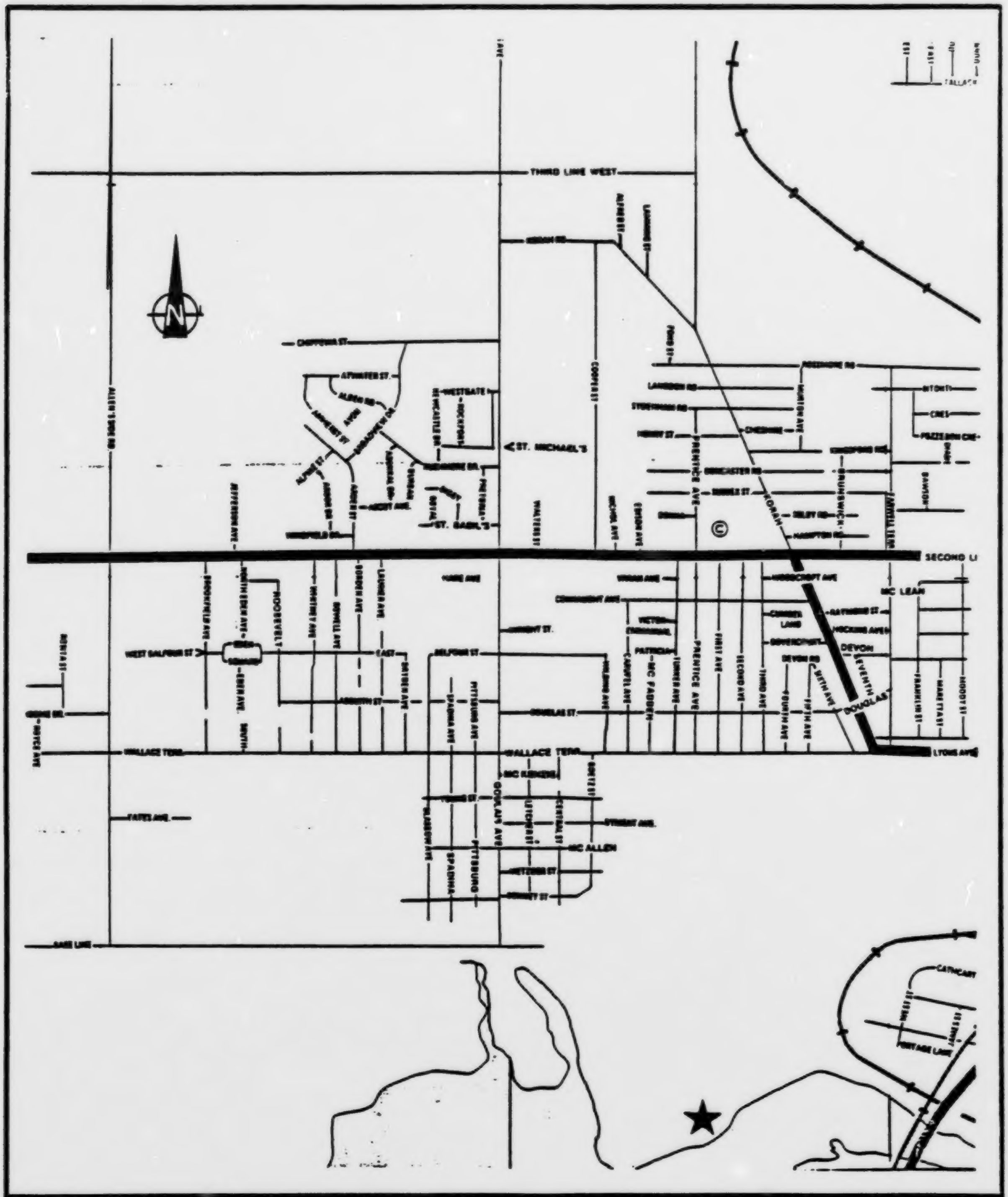
Groundwater, Proximity In bedrock, 30 to 100 m below surface

Use Municipal and industrial water supply

Proximity of Existing Wells Municipal wells 2 - 3 km distance

Site Investigations None reported

6. **Comments/Remarks:** Standard chemical plant site is now part of Algoma Steel Mill Complex and therefore environmental impacts associated with chemical plant can not be separated from impacts associated with the steel mill.


N
THIRD LINE WEST
CHIPPEWA ST.
ATWATER ST.
WESTGATE
ST. MICHAEL'S
ST. BASIL'S
SECOND LI
DOUGLAS
SEVENTH
DEVON
MC LEAN
WEST BALFOUR ST.
BALFOUR ST.
DOUGLAS ST.
WALLACE TERR.
MC ALLEN
PRENTICE AVE
CATHCART
PORTAGE LAKE
LYONS AVE
©

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| Drawn by | Date | City of Sault Ste. Marie, showing location of Standard Chemical Co. site. |
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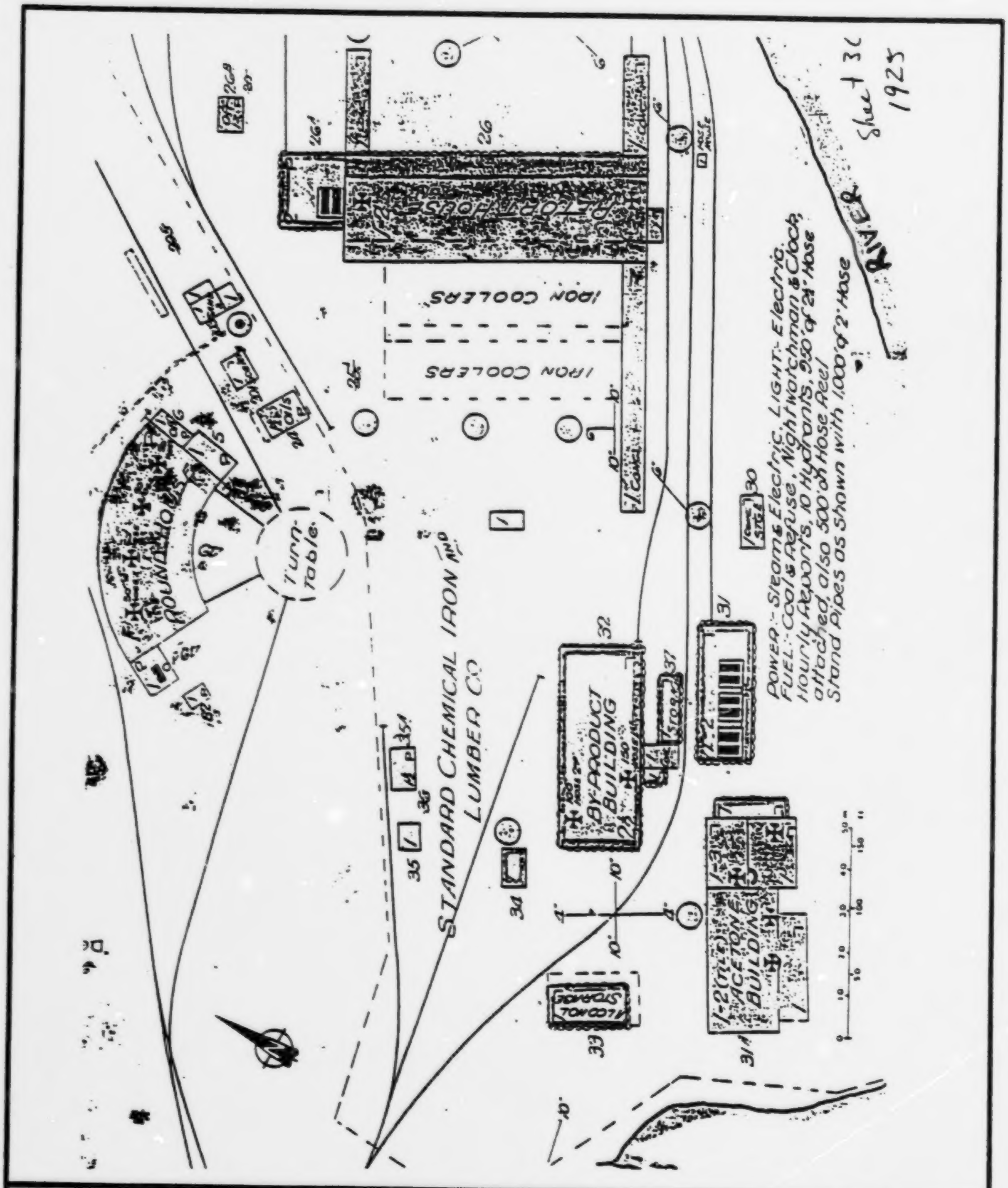
INTERA Technologies


STANDARD CHEMICAL IRON AND LUMBER CO
RETORT HOUSE
IRON COOLERS
IRON COOLERS
ROUND HOUSE
Turn-table
BY-PRODUCT BUILDING
ACETONE BUILDING
ALCOHOL STORAGE
RIVER
Sheet 30
1925
POWER:- Steam & Electric. LIGHT:- Electric.
FUEL:- Coal & Refuse. Nightwatchman & Clock
Hourly Reports, 10 Hydrants, 350' of 2½" Hose
attached, also 500' of Hose Reel
Stand Pipes as shown with 1,000' of 2" Hose
26
30
31
32
33
34
35
36
37

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1925 Plan of Standard Chemical Co. site, Sault Ste. Marie, (Source: Fire insurance plan, Sault Ste. Marie Public Library, sheet 30)

INTERA Technologies

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City South River

Street Address Ottawa Ave. at South River

MOE Region Northeastern

MOE District North Bay

NTS Map Sheet 31 E/14

Historical Maps and Photos Available 1908 fire insurance plan (Public Archives Canada NMC 9702, sheets 1 and 2); 1929 air photo (NAPL A1797-8)

2. **Site Identification:**

Name Standard Chemical Co. Ltd.

Type of Facility Wood distillation plant

Operator(s) and Period(s) of Operation Standard Chemical Co. Ltd. (1903 - 1954); Charcoal Supply and Sales Co./Beaver Charcoal Co. (1955 - 1967)

3. **Site Characteristics:**

Size (when operated) 2.3 hectare

Present Land Use Vacant

Planned Land Use Development including mall, resort, townhouses, etc. planned in 1977 but in 1983 still deferred, recently reviewed

Present Occupant(s) Vacant

Present Land Use Adjoining Properties West - residential; north & east - South River; south - light industrial and vacant

Underground Utilities None

Soil Conditions Unknown

Site Access Uncontrolled

**4. Evidence of Buried Wastes:**

Operating Period 1903 - 1967 (64 years)

Excavation History None reported

Visible Wastes Tar, cinders, ash and charcoal visible on-site; tar pit known to exist but not found

Odour Odour of wood alcohol on-site

Water Pollution Unconfirmed reports of tar in Forest Lake sediments

**5. Resource Characteristics:**

Surface Water Forest Lake/South River

Proximity Adjacent on north and east boundary

Use Recreational

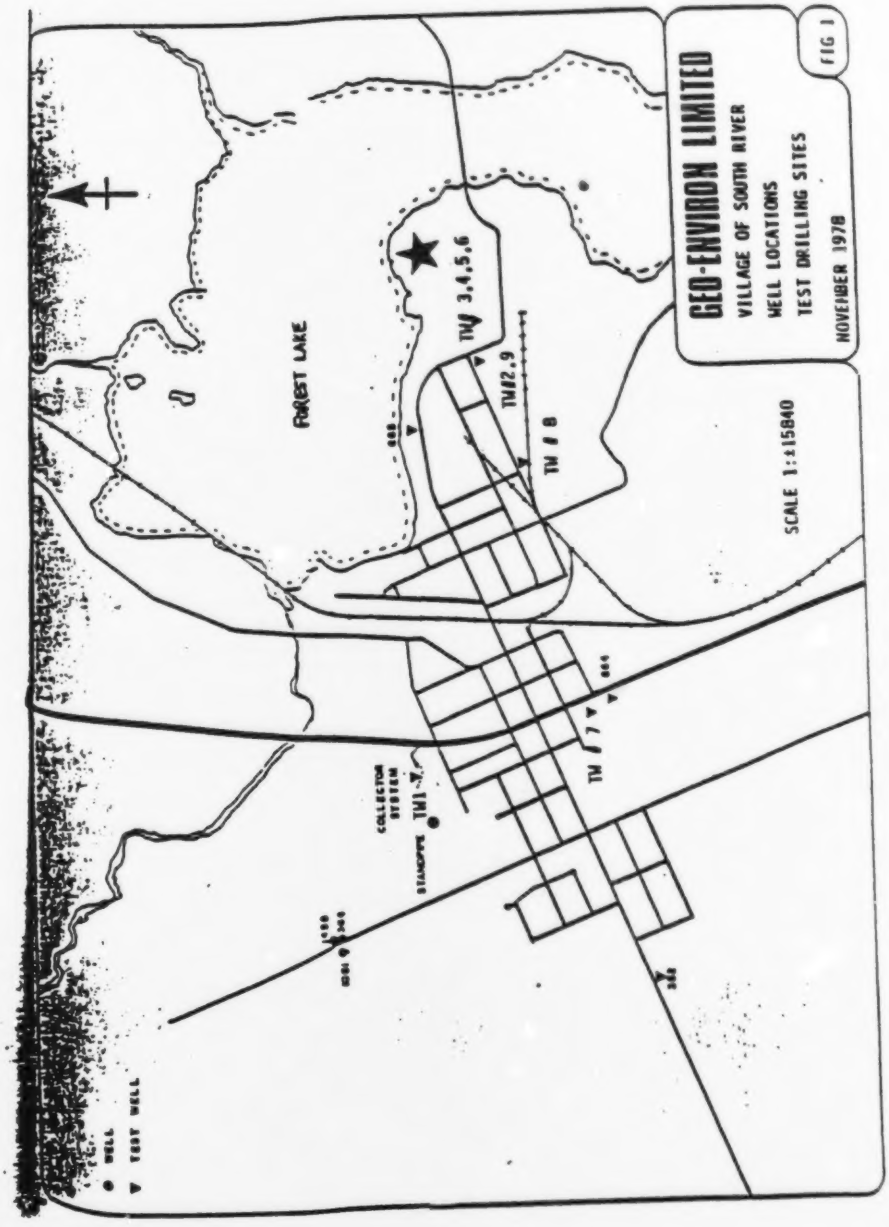
Groundwater, Proximity Depth of 15 - 20 m below surface

Use Domestic water supply

Proximity of Existing Wells Town water supply wells within 300 m of site

Site Investigations None reported

**6. Comments/Remarks:** Tar pit known to exist on-site in 1977 but not found during site visit. Demolished buildings and structure remain on-site; 1919 plant products include creosote oils and wood tars


GEO-ENVIRON LIMITED
VILLAGE OF SOUTH RIVER
WELL LOCATIONS
TEST DRILLING SITES
NOVEMBER 1978
FIG 1
FOREST LAKE
SCALE 1:±15840
TW 3,4,5,6
TW#2,9
TW # 8
TW # 7
TW1-7
COLLECTOR SYSTEM
STANDPIPE
● WELL
▼ TEST WELL

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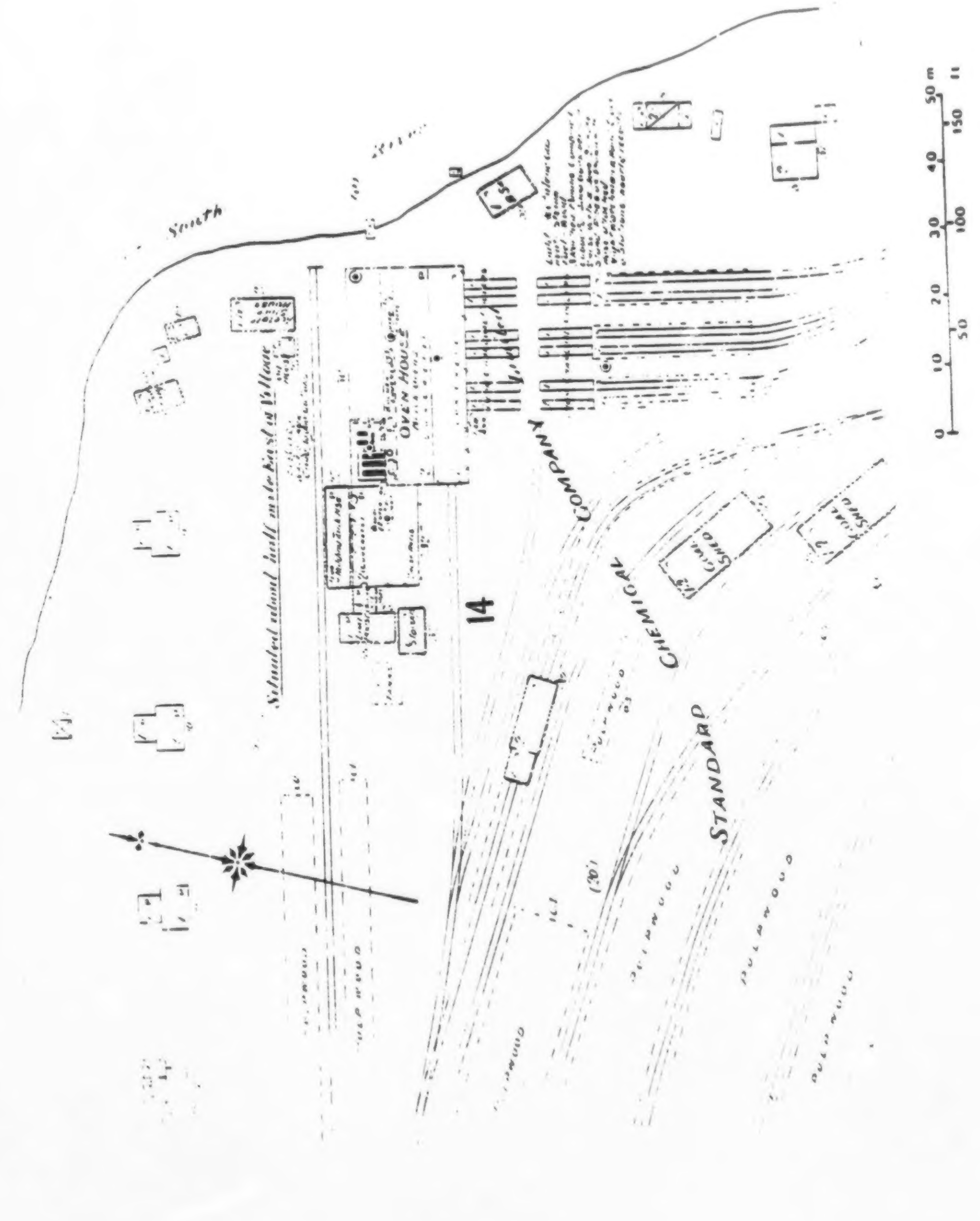
Village of South River, showing location of Standard Chemical Co. site.

INTERA Technologies


South River
OVEN HOUSE
14
STANDARD CHEMICAL COMPANY
0 10 20 30 40 50 m
50 100 150 ft

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Revisions | Date

1908 Plan of Standard Chemical Co. site, South River, (Source: Fire insurance plan, Public Archives Canada, NMC-9702, sheet 2)

INTERA Technologies

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Thornbury

Street Address Bounded by Bay St. (south); Mill St. (east); Poplar St. (north); Beaver River (west)

MOE Region Southwestern

MOE District Owen Sound

NTS Map Sheet 41 A/9

Historical Maps and Photos Available 1925 fire insurance plan (Public Archvies Canada NMC 9729, sheet 1 (key) and sheet 3); 1938 air photo (NAPL A5982-2)

2. **Site Identification:**

Name Standard Chemical Co.

Type of Facility Wood distillation plant

Operator(s) and Period(s) of Operation Standard Chemical Co. (approx. 1916 to 1927)

3. **Site Characteristics:**

Size (when operated) 4 - 5 hectare

Present Land Use Vacant; original boiler and still house buildings on-site (now unoccupied)

Planned Land Use Condominiums/apartments are planned

Present Occupant(s) Site unoccupied

Present Land Use Adjoining Properties North - residential; east - vacant; south - residential and vacant; west - Beaver River

Underground Utilities Sanitary sewers and watermain along Bay, Poplar and Mill Streets

Soil Conditions Cinders, ash and construction rubble (0 - 1 m) overlying silty sand

Site Access Uncontrolled

4. **Evidence of Buried Wastes:**

Operating Period 1916 - 1925 (9 years)

Excavation History Test pits have been dug east of building in former acetate storage areas

Visible Wastes Fill cinder and ash in test pits, solid tar in test pits in area of building foundations, PAH present in tar and selected soil samples

Odour None observed or reported

Water Pollution None observed or reported

5. **Resource Characteristics:**

Surface Water Beaver River and Georgian Bay

Proximity River adjacent to plant immediately west of existing building

Use Recreational

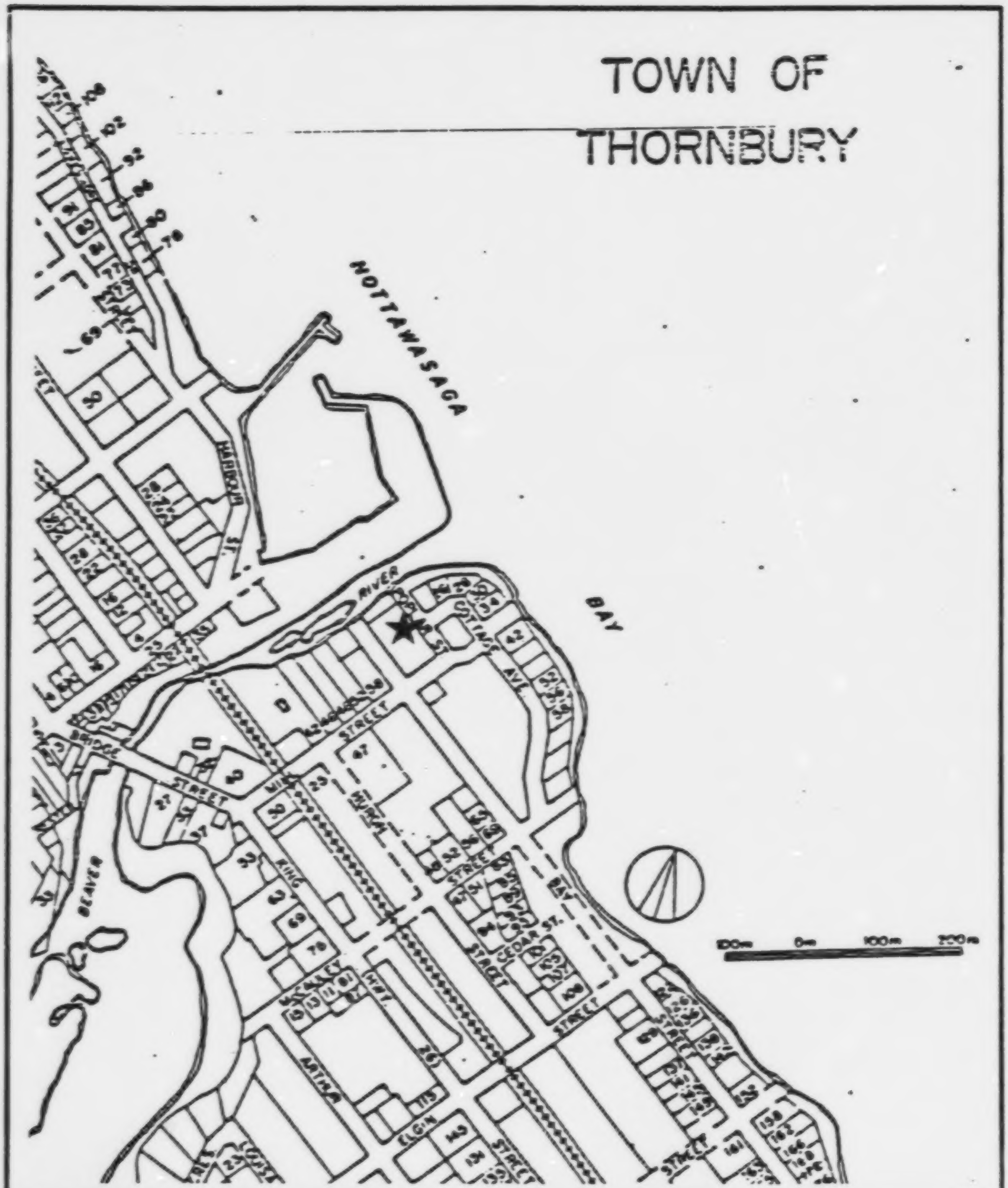
Groundwater, Proximity Shallow (less than 2 m)

Use None

Proximity of Existing Wells Unknown (residents are on city supply)

Site Investigations Observed recent test pits dug on property east of building (1988); 14 test pits completed by owner, chemical analyses completed on soil and water samples, no report available

6. **Comments/Remarks:** - Poplar St. is used as a public boat launching ramp; property is used as parking area; Water supply from Georgian Bay, intake located at Peel Street and 600 m into Bay; boiler and still house buildings later used as furniture factory for 20 - 25 years


TOWN OF
THORNBURY
NOTTAWASAGA
BAY
RIVER
HARBOUR ST.
BRIDGE
STREET
KING
BEAVER
STREET
CEDAR ST.
BAY
ARTHUR
ELGIN
STREET
100m
0m
100m
200m

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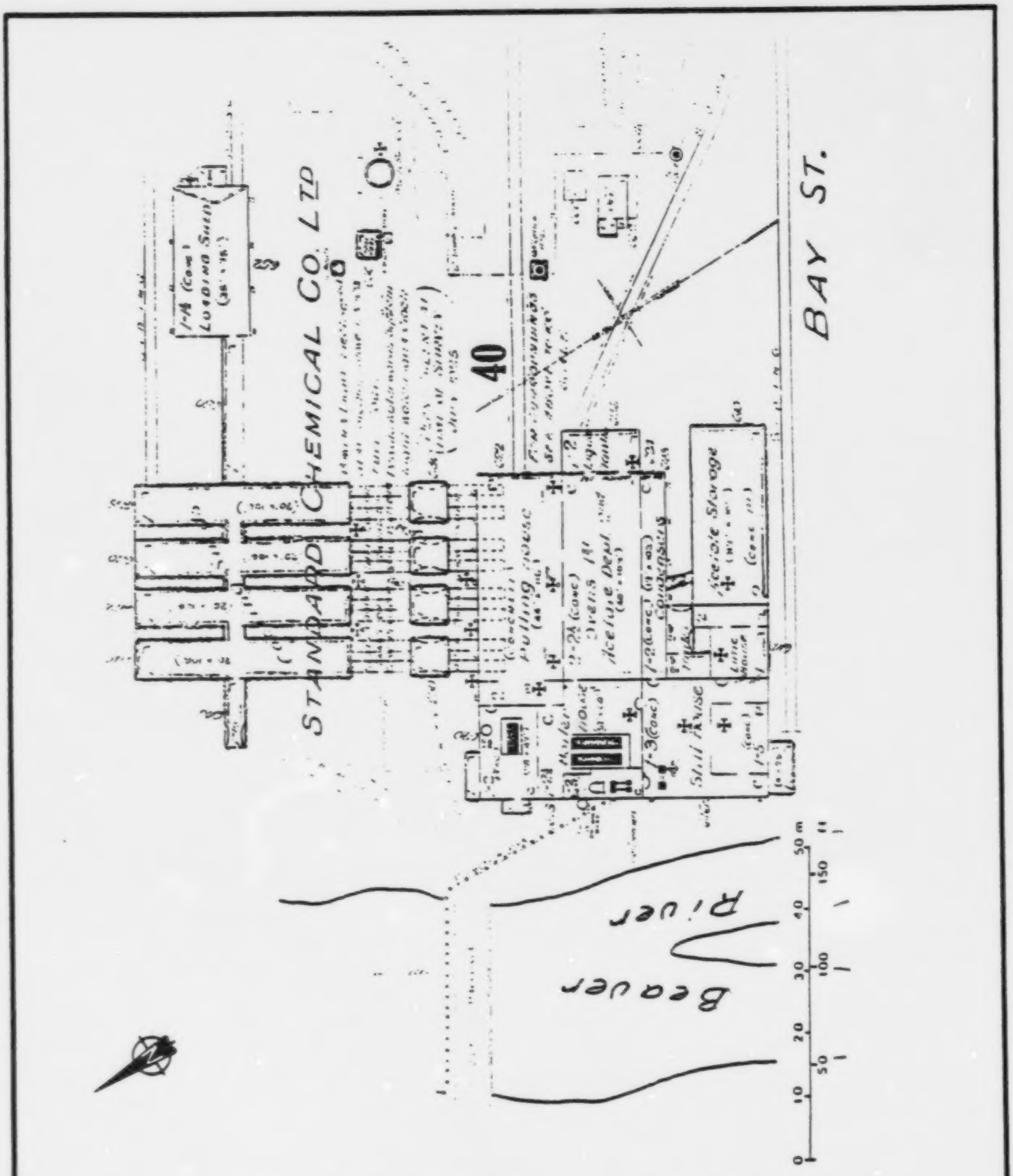
Town of Thornbury, showing location of Standard Chemical Co. site.

**INTERA Technologies**


STANDARD CHEMICAL CO. LTD
BAY ST.
40
1-A (Conc) Loading Shed
Acetate Storage
Acetone Dept. and Ovens
Lime House
Still House
Beaver River
0
10
20
30
40
50 m
50
100
150

| | |
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1925 Plan of Standard Chemical Co. site, Thornbury, (Source: Fire insurance plan, Public Archives Canada, NMC-9729, sheet 3)

INTERA Technologies

## Fact Sheet for Survey of Industrial Sites

1. **Site Location:**

City Trout Creek

Street Address Con 1, PCL 3489 N.S.
Municipality of the Town of
Trout Creek

MOE Region Sudbury

MOE District North Bay

NTS Map Sheet 31 E/14

Historical Maps and Photos Available no fire insurance plans available; 1929 air photo (NAPL A1804-71)

2. **Site Identification:**

Name Dominion Wood and Lumber Co. Ltd.

Type of Facility Wood distillation plant

Operator(s) and Period(s) of Operation Dominion Wood and Lumber Co. - 1920s

3. **Site Characteristics:**

Size (when operated) Approximately 1 hectare

Present Land Use Vacant - former gravel pit; minor recreational

Planned Land Use No development planned

Present Occupant(s) Vacant

Present Land Use Adjoining Properties Rural - vacant

Underground Utilities None

Soil Conditions Sand and gravel

Site Access Uncontrolled - unlimited access

4. **Evidence of Buried Wastes:**

Operating Period Unknown - 1920s

Excavation History Part of site excavated for sand and gravel for highway construction

Visible Wastes Minor charcoal, cinders, ash

Odour None observed or reported

Water Pollution None observed or reported

5. **Resource Characteristics:**

Surface Water Two small creeks run north and west of the site

Proximity Adjacent

Use Recreational - fishing

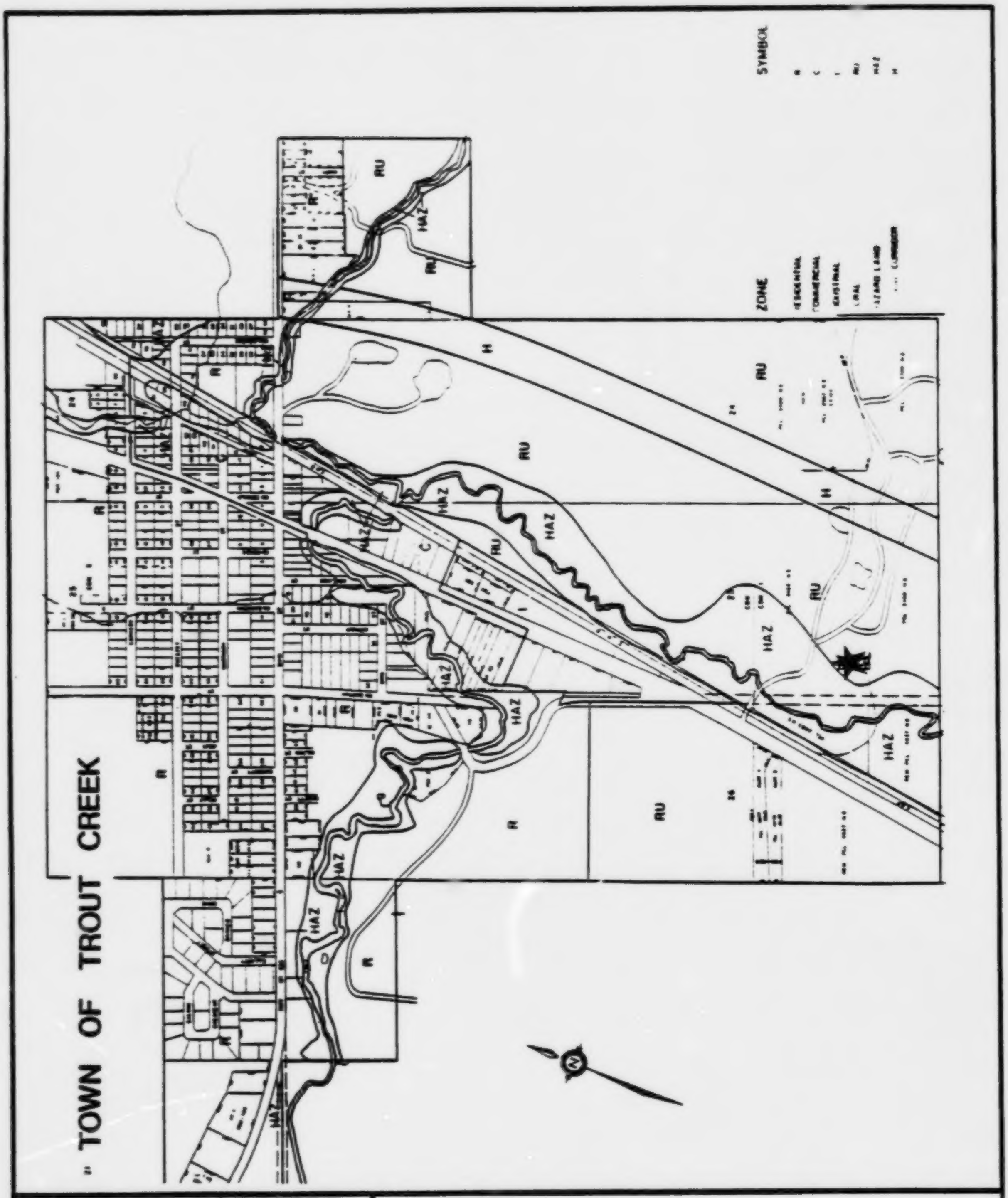
Groundwater, Proximity Unknown

Use Drinking water

Proximity of Existing Wells Town is on private well systems, nearest well likely greater than 400 m distant

Site Investigations None reported

6. **Comments/Remarks:** Site is located adjacent to an unused gravel pit. Most of the plant was removed during construction of Hwy. 11. Site is removed from the town. Only historical plan of site is from 1929 air photo - buildings evident in this photo. It is possible that waste materials were used in the construction of Hwy. 11.


TOWN OF TROUT CREEK
ZONE
SYMBOL
RESIDENTIAL
COMMERCIAL
RURAL
HAZARD LAND
CORRIDOR
R
RU
HAZ
C
H
N

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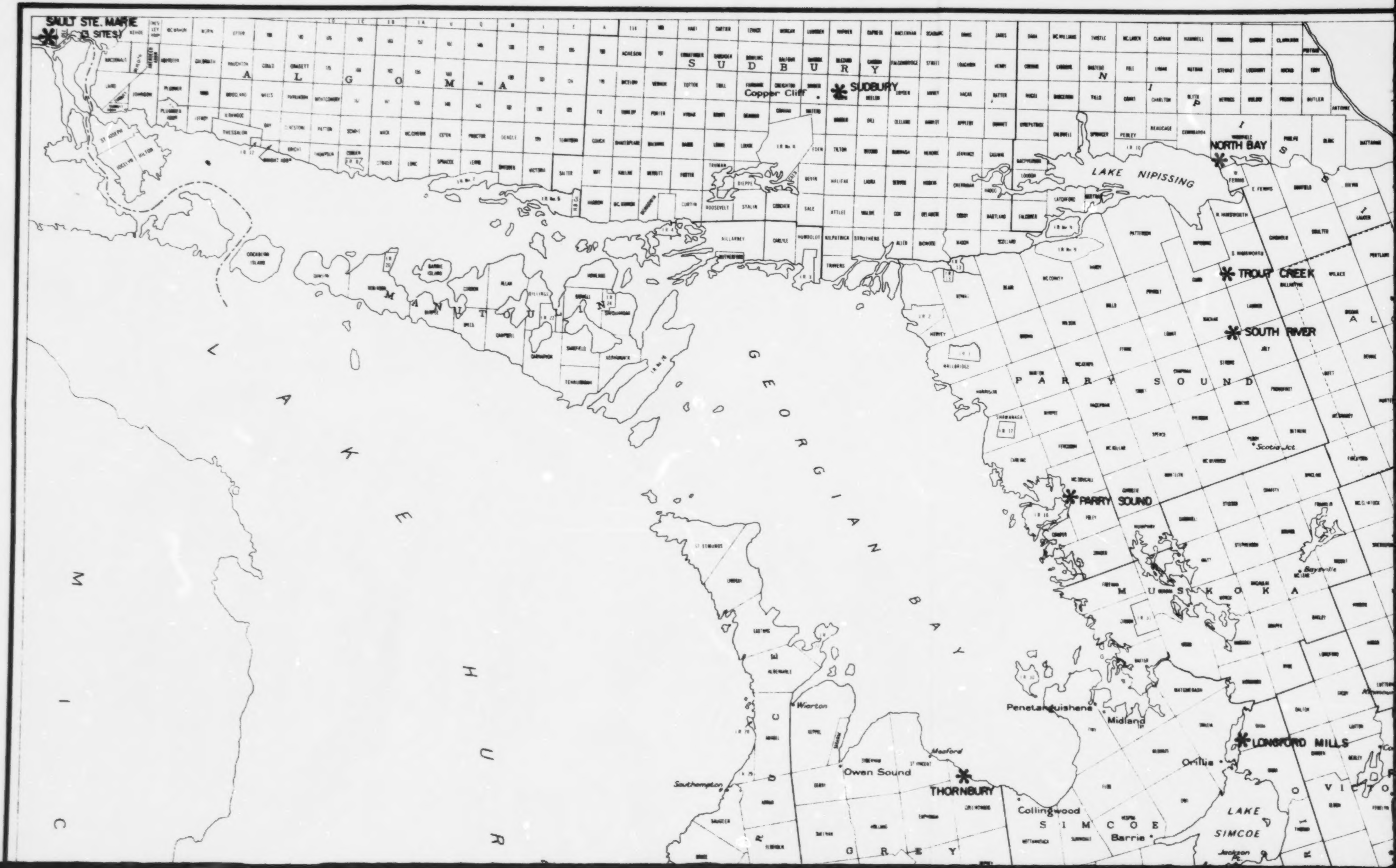
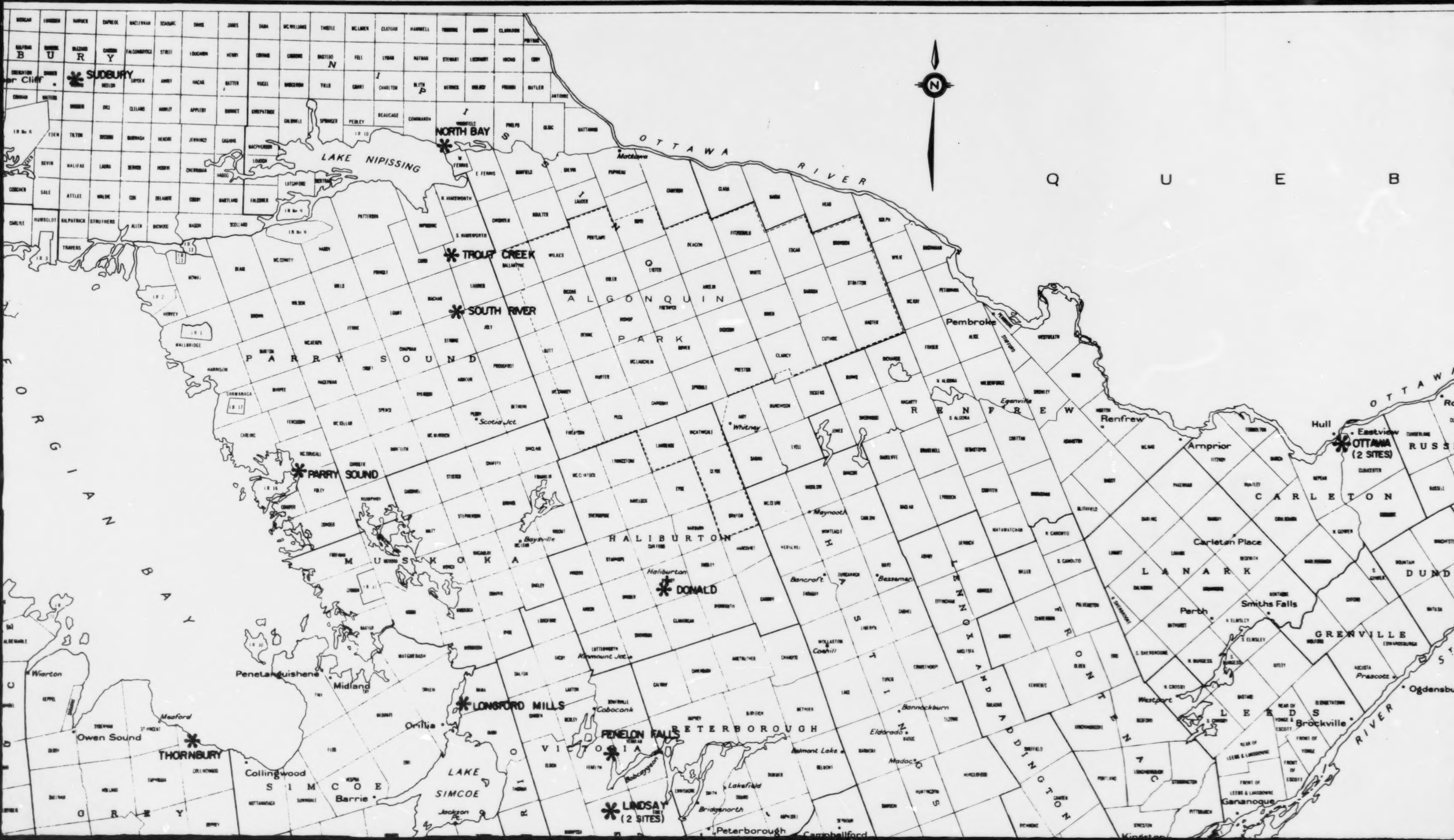
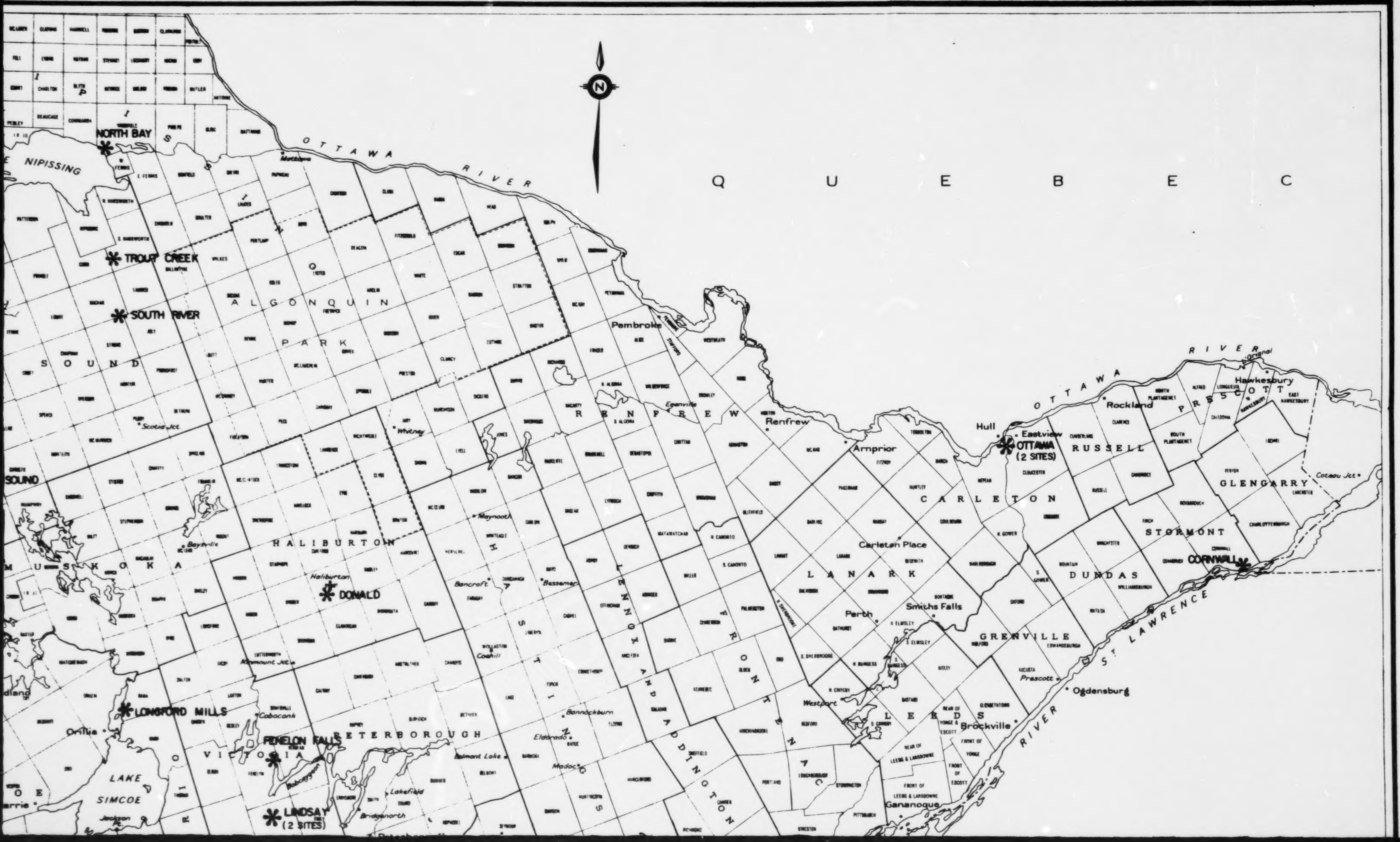
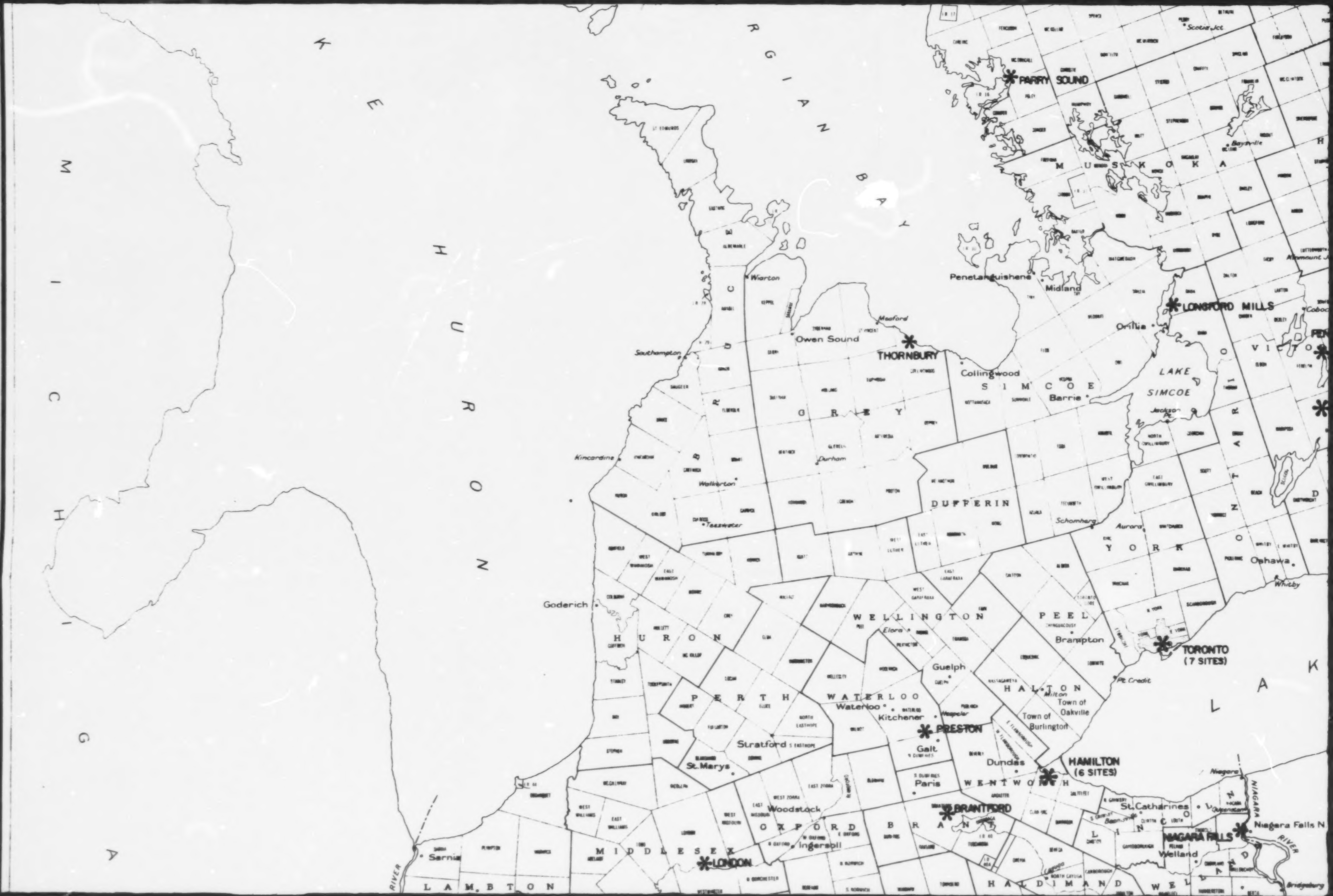
Town of Trout Creek, showing location of Dominion Wood and Lumber Co. site.

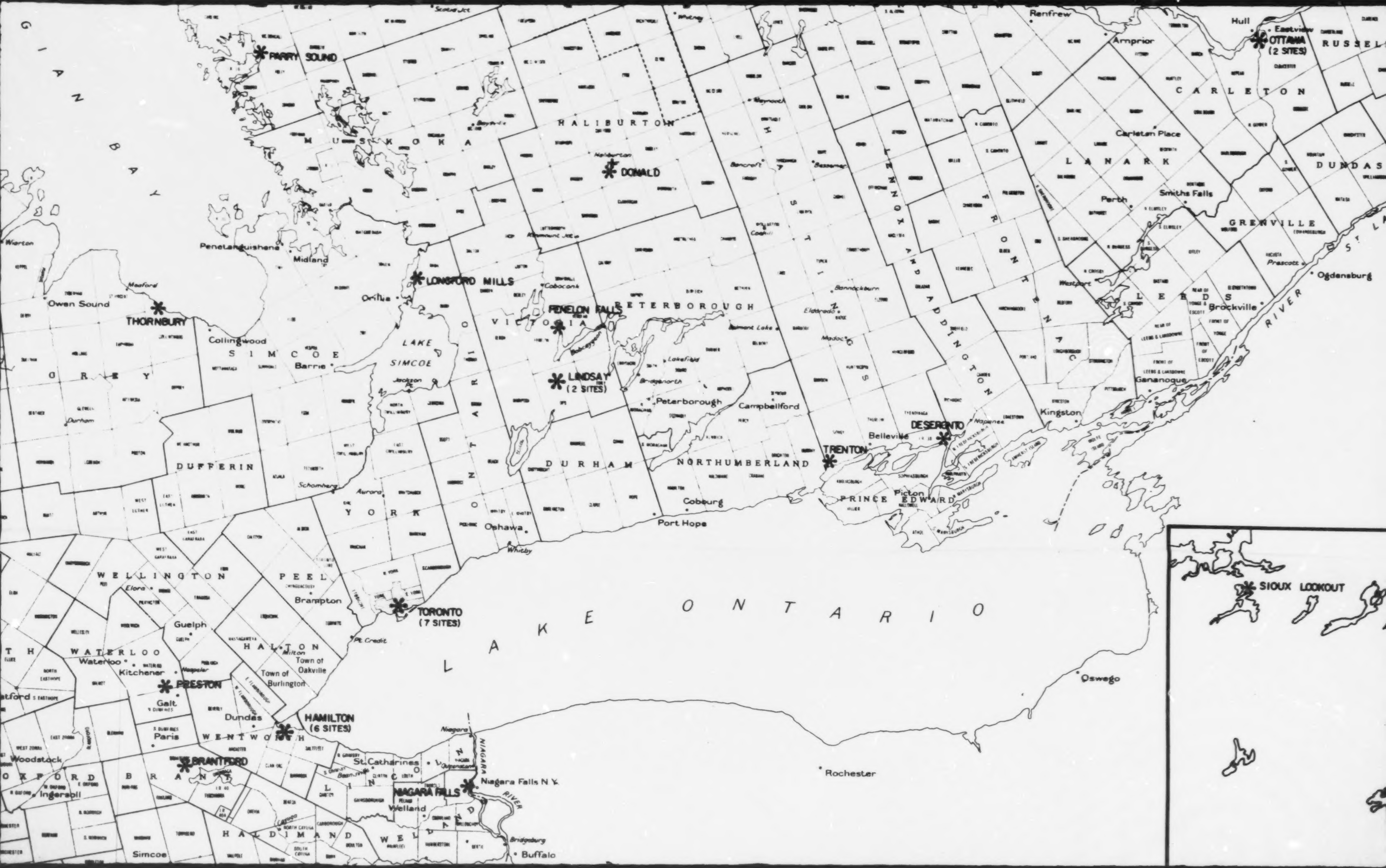
INTERA Technologies

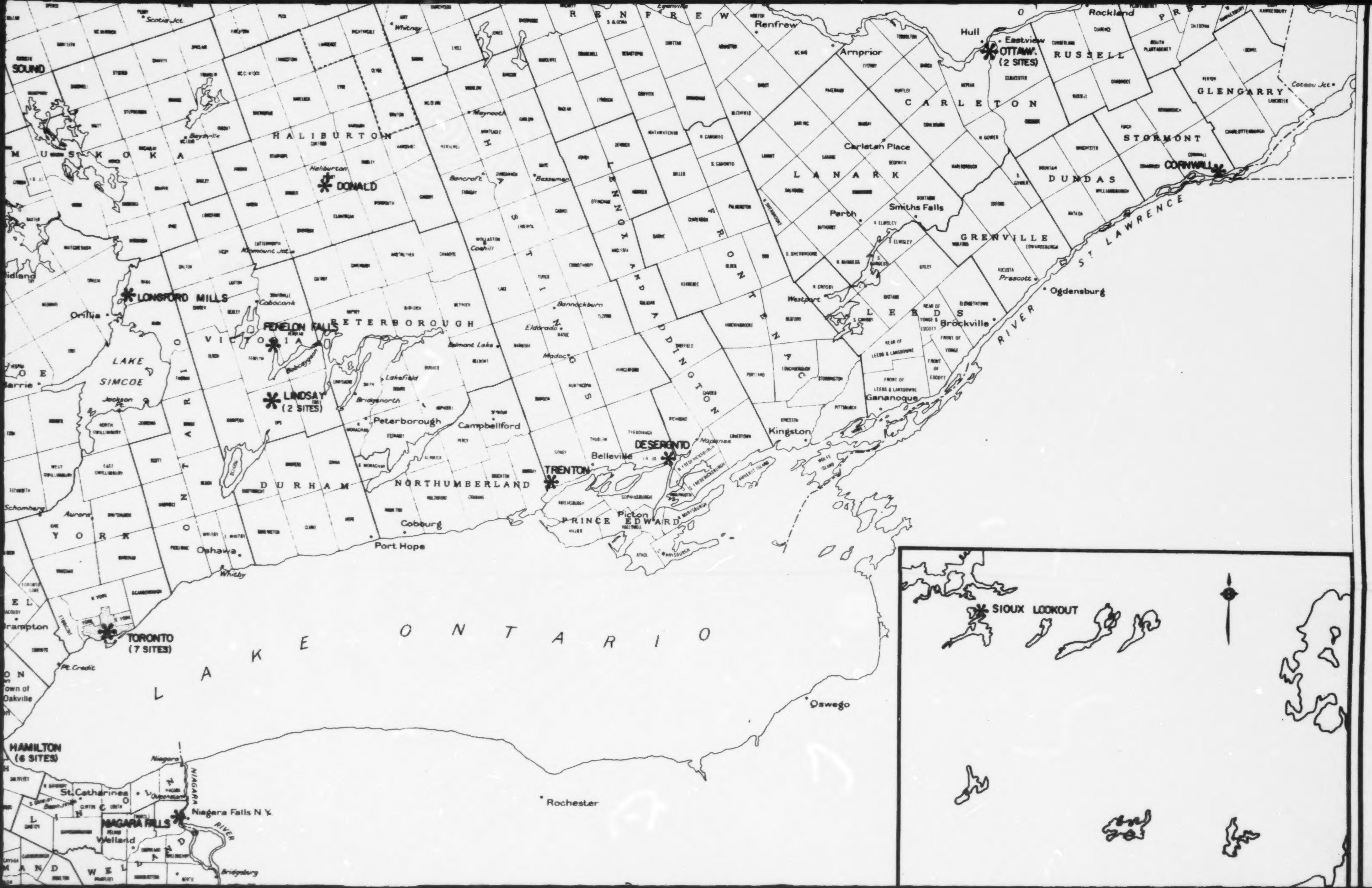

SAULT STE. MARIE (3 SITES)
ALGOMA
SUDBURY
Copper Cliff
SUDBURY
NIPISSING
NORTH BAY
LAKE NIPISSING
TROUT CREEK
SOUTH RIVER
PARRY SOUND
PARRY SOUND
Scotia Jct.
MANITOULIN
LAKE HURON
MIC
GEORGIAN BAY
MUSKOKA
Baysville
Penetanguishene
Midland
LONGFORD MILLS
Orillia
LAKE SIMCOE
Jackson Pt.
SIMCOE
Barrie
Collingwood
THORNBURY
Meaford
Owen Sound
GREY
Wiarton
Southampton
BRUCE
VICTO
ALGO


N
SUDBURY
NORTH BAY
LAKE NIPISSING
NIPISSING
OTTAWA RIVER
Mattawa
QUEBEC
TROUT CREEK
SOUTH RIVER
ALGONQUIN PARK
PARRY SOUND
Scotia Jct.
GEORGIAN BAY
MUSKOKA
Baysville
HALIBURTON
Haliburton
DONALD
Whitney
Maynooth
Bancroft
Bessemer
HASTINGS
LENNOX AND ADDINGTON
FRONTENAC
RENFREW
Pembroke
Eganville
Renfrew
Arnprior
Hull
OTTAWA (2 SITES)
CARLETON
RUSSELL
Carleton Place
LANARK
Perth
Smiths Falls
GRENVILLE
Prescott
Ogdensburg
LEEDS
Brockville
Westport
Gananoque
Kingston
ST. LAWRENCE RIVER
DUNDAS
Wiarton
Owen Sound
Meaford
THORNBURY
Collingwood
Penetanguishene
Midland
Orillia
LONGFORD MILLS
SIMCOE
Barrie
LAKE SIMCOE
Jackson Pt.
GREY
ONTARIO
VICTORIA
Coboconk
Kinmount Jct.
FENELON FALLS
Bobcaygeon
LINDSAY (2 SITES)
PETERBOROUGH
Lakefield
Bridgenorth
Peterborough
Campbellford
Belmont Lake
Eldorado
Madoc
Bannockburn
Coehill

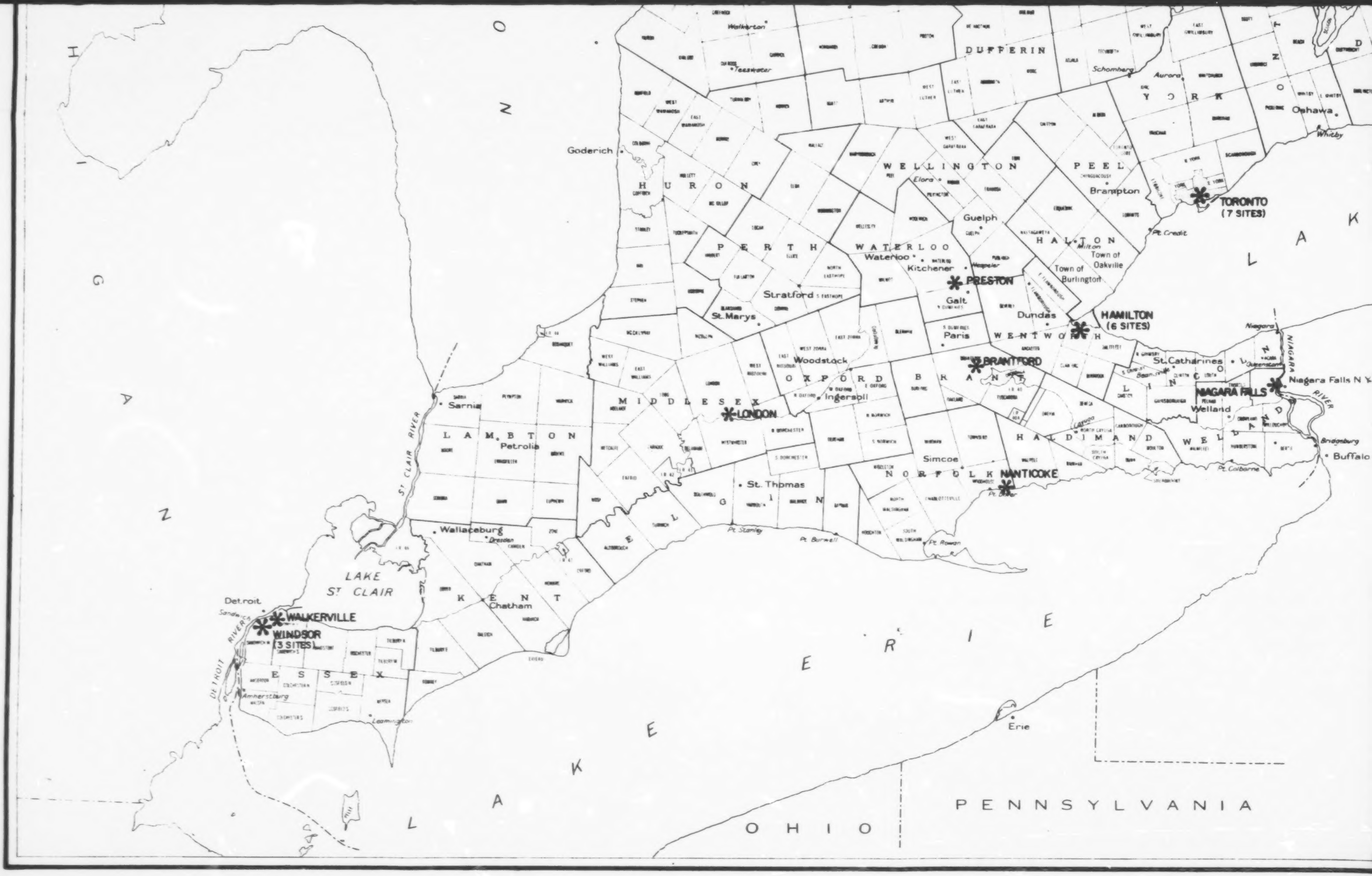

N
QUEBEC
OTTAWA RIVER
NIPISSING
NORTH BAY
Mattawa
TROUT CREEK
SOUTH RIVER
ALGONQUIN PARK
SOUND
PARRY SOUND
Scotia Jct
MUSKOKA
Baysville
HALIBURTON
Haliburton
DONALD
Whitney
Maynooth
Bancroft
Bessemer
Coehill
Kinmount Jct
LONGFORD MILLS
Orillia
LAKE SIMCOE
Jackson Pt
Barrie
Coboconk
FENELON FALLS
VICTORIA
PETERBOROUGH
Bobcaygeon
LINDSAY (2 SITES)
Lakefield
Bridgenorth
Peterborough
Belmont Lake
Eldorado
Madoc
Bannockburn
HASTINGS
LENNOX AND ADDINGTON
FRONTENAC
RENFREW
Pembroke
Eganville
Renfrew
Arnprior
Hull
Eastview
OTTAWA (2 SITES)
CARLETON
RUSSELL
Rockland
PRESCOTT
Hawkesbury
L'Orignal
GLENGARRY
Coteau Jct
STORMONT
CORNWALL
DUNDAS
LANARK
Carleton Place
Perth
Smiths Falls
GRENVILLE
Prescott
Ogdensburg
LEEDS
Brockville
Westport
Gananoque
ST LAWRENCE RIVER


LAKE MICHIGAN
LAKE HURON
GEORGIAN BAY
PARRY SOUND
Scotia Jct.
Baysville
MUSKOKA
Wiarton
Penetanguishene
Midland
Owen Sound
Meaford
THORNBURY
Southampton
LONGFORD MILLS
Orillia
Collingwood
SIMCOE
Barrie
LAKE SIMCOE
Jackson Pt.
GREY
BRUCE
Kincardine
Durham
Walkerton
DUFFERIN
Teeswater
Schomberg
Aurora
YORK
ONTARIO
VICTORIA
Oshawa
Whitby
Goderich
WELLINGTON
PEEL
Elora
Brampton
TORONTO (7 SITES)
HURON
Guelph
Pt. Credit
PERTH
WATERLOO
HALTON
Milton
Waterloo
Kitchener
PRESTON
Town of Oakville
Town of Burlington
Stratford
Galt
Dundas
HAMILTON (6 SITES)
St. Marys
Paris
WENTWORTH
Niagara
Woodstock
BRANTFORD
St. Catharines
OXFORD
BRANT
LINCOLN
NIAGARA FALLS
Niagara Falls N.Y.
Ingersoll
Welland
MIDDLESEX
LONDON
Sarnia
LAMBTON
HALDIMAND
WELLAND
NIAGARA RIVER
Bridgeburg
LAKE ONTARIO

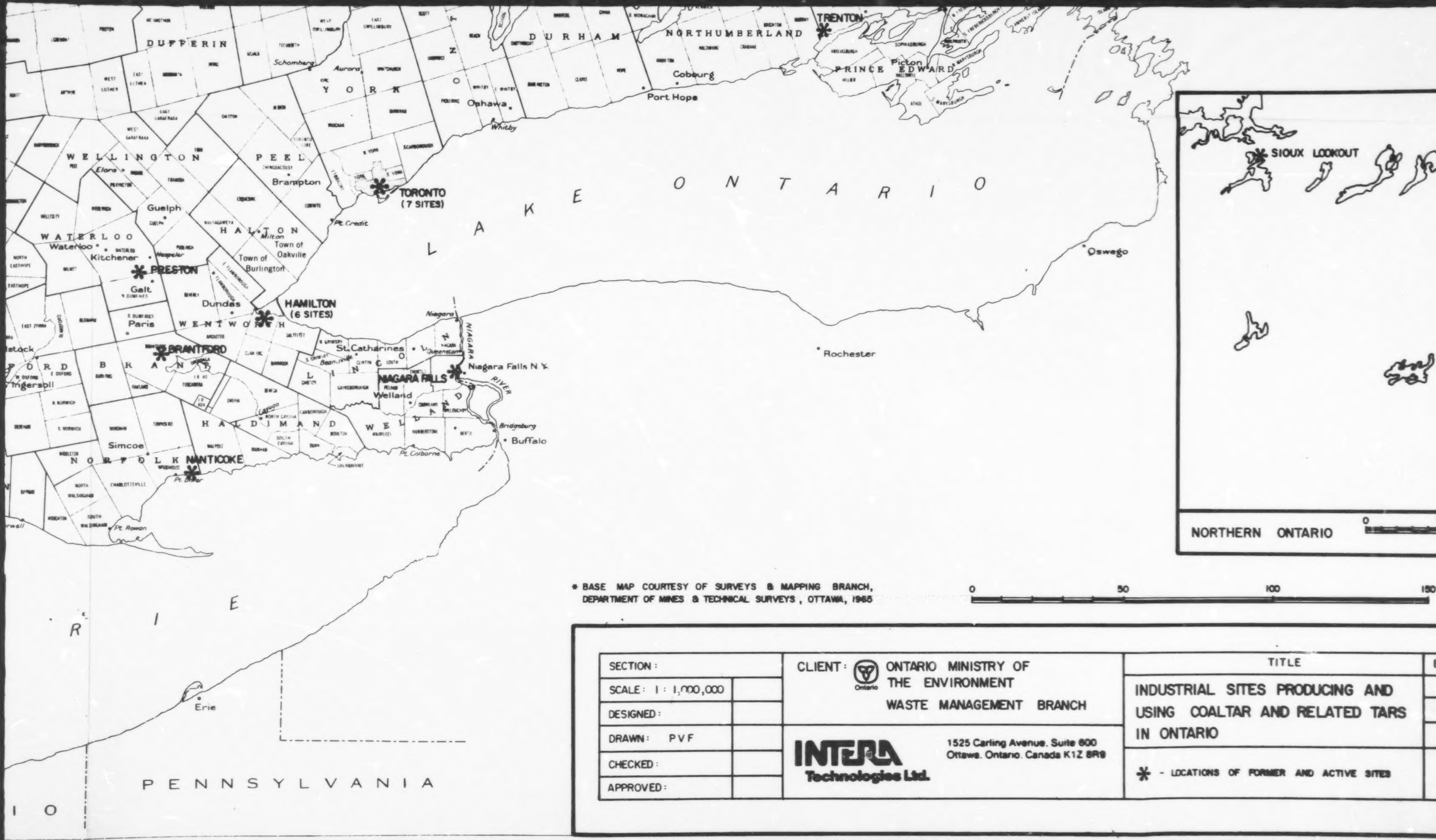

GEORGIAN BAY
PARRY SOUND
MUSKOKA
HALIBURTON
Haliburton
DONALD
HASTINGS
Bancroft
Bessemer
LENNOX AND ADDINGTON
FRONTENAC
Renfrew
Arnprior
Hull
Eastview
OTTAWA (2 SITES)
RUSSELL
CARLETON
Carleton Place
LANARK
Perth
Smiths Falls
DUNDAS
GRENVILLE
Prescott
Ogdensburg
LEEDS
Brockville
Westport
Gananoque
Kingston
ST. LAWRENCE RIVER
Wiarton
Owen Sound
Meaford
THORNBURY
Penetanguishene
Midland
Orillia
LONGFORD MILLS
Coboconk
FENELON FALLS
VICTORIA
PETERBOROUGH
Bobcaygeon
Eldorado
Madoc
Bannockburn
Coehill
Maynooth
LINDSAY (2 SITES)
Lakefield
Bridgenorth
Peterborough
Campbellford
Belleville
DESERONTO
Napanee
TRENTON
NORTHUMBERLAND
PRINCE EDWARD
Picton
Cobourg
Port Hope
DURHAM
ONTARIO
Oshawa
Whitby
Collingwood
SIMCOE
Barrie
LAKE SIMCOE
Jackson Pt.
GREY
Durham
DUFFERIN
Schomberg
Aurora
YORK
WELLINGTON
Elora
PEEL
Brampton
TORONTO (7 SITES)
Pt. Credit
Guelph
WATERLOO
Waterloo
Kitchener
Hespeler
PRESTON
Galt
HALTON
Milton
Town of Oakville
Town of Burlington
Dundas
HAMILTON (6 SITES)
WENTWORTH
Paris
BRANTFORD
BRANT
Woodstock
OXFORD
Ingersoll
Stratford
St. Catharines
LINCOLN
Niagara
NIAGARA
NIAGARA FALLS
Niagara Falls N.Y.
Welland
WELLAND
NIAGARA RIVER
Bridgeburg
Buffalo
HALDIMAND
Simcoe
LAKE ONTARIO
Oswego
Rochester
SIOUX LOOKOUT



SOUND
Scotia Jct
Whitney
Egenville
R E N F R E W
Renfrew
Arnprior
Hull
Eastview
OTTAWA
(2 SITES)
Rockland
R U S S E L L
GLENGARRY
Coteau Jct
C A R L E T O N
STORMONT
CORNWALL
D U N D A S
Carleton Place
L A N A R K
Perth
Smiths Falls
G R E N V I L L E
Prescott
Ogdensburg
ST LAWRENCE
RIVER
Westport
L E E D S
Brockville
Gananoque
Kingston
M U S K O K A
Baysville
H A L I B U R T O N
Haliburton
DONALD
Maynooth
Bancroft
Bessemer
H A S T I N G S
LENNOX AND ADDINGTON
F R O N T E N A C
Coehill
Kinmount Jct
Midland
LONGFORD MILLS
Orillia
Coboconk
FENELON FALLS
V I C T O R I A
P E T E R B O R O U G H
Bannockburn
Eldorado
Madoc
Belmont Lake
Bobcaygeon
Lakefield
Bridgenorth
LAKE SIMCOE
Jackson Pt.
Barrie
LINDSAY
(2 SITES)
Peterborough
Campbellford
O N T A R I O
Belleville
DESERONTO
Napanee
TRENTON
D U R H A M
N O R T H U M B E R L A N D
Schomberg
Aurora
Y O R K
Oshawa
Whitby
Cobourg
Port Hope
Picton
PRINCE EDWARD
Brampton
TORONTO
(7 SITES)
Pt. Credit
Town of Oakville
L A K E  O N T A R I O
Oswego
HAMILTON
(6 SITES)
Niagara
NIAGARA RIVER
St. Catharines
NIAGARA FALLS
Niagara Falls N.Y.
Welland
Rochester
Bridgeburg
SIOUX LOOKOUT



L A K E H U R O N
M I C H I G A N
L A K E E R I E
L A K E S T. C L A I R
L A K E O N T A R I O
HURON
PERTH
WATERLOO
WELLINGTON
DUFFERIN
PEEL
YORK
HALTON
WENTWORTH
BRANT
OXFORD
MIDDLESEX
LAMBTON
KENT
ESSEX
ELGIN
NORFOLK
HALDIMAND
LINCOLN
WELLAND
ONTARIO
PENNSYLVANIA
OHIO
ST. CLAIR RIVER
DETROIT RIVER
NIAGARA RIVER
TORONTO (7 SITES)
HAMILTON (6 SITES)
PRESTON
BRANTFORD
LONDON
NANTICOKE
NIAGARA FALLS
WALKERVILLE
WINDSOR (3 SITES)
Goderich
Walkerton
Teeswater
Schomberg
Aurora
Oshawa
Whitby
Elora
Guelph
Brampton
Pt. Credit
Milton
Town of Oakville
Town of Burlington
Waterloo
Kitchener
Hespeler
Galt
Stratford
St. Marys
Dundas
Paris
Woodstock
Ingersoll
St. Catharines
Niagara
Queenston
Niagara Falls N.Y.
Welland
Beamsville
Bridgeburg
Buffalo
Pt. Colborne
Cayuga
Simcoe
Pt. Dover
Pt. Rowan
Pt. Burwell
Pt. Stanley
St. Thomas
Sarnia
Petrolia
Wallaceburg
Dresden
Chatham
Detroit
Sandwich
Amherstburg
Leamington
Erie


DUFFERIN
DURHAM
NORTHUMBERLAND
TRENTON
Cobourg
Port Hope
PRINCE EDWARD
Picton
YORK
Schomberg
Aurora
Oshawa
Whitby
WELLINGTON
Elora
PEEL
Brampton
TORONTO
(7 SITES)
Pt. Credit
Guelph
HALTON
Milton
Town of Oakville
Town of Burlington
WATERLOO
Waterloo
Kitchener
PRESTON
Galt
Dundas
HAMILTON
(6 SITES)
WENTWORTH
Paris
BRANTFORD
BRANT
OXFORD
Ingersoll
St. Catharines
Beamsville
LINCOLN
Niagara
Queenston
NIAGARA RIVER
Niagara Falls N.Y.
NIAGARA FALLS
Welland
WELLAND
Pt. Colborne
Bridgeburg
Buffalo
HALDIMAND
Cayuga
Simcoe
NORFOLK
NANTICOKE
Pt. Dover
Pt. Rowan
LAKE ONTARIO
Oswego
Rochester
ERIE
Erie
PENNSYLVANIA
SIOUX LOOKOUT
NORTHERN ONTARIO
0
50
100
150

* BASE MAP COURTESY OF SURVEYS & MAPPING BRANCH, DEPARTMENT OF MINES & TECHNICAL SURVEYS, OTTAWA, 1965

SECTION:
SCALE: 1 : 1,000,000
DESIGNED:
DRAWN: PVF
CHECKED:
APPROVED:

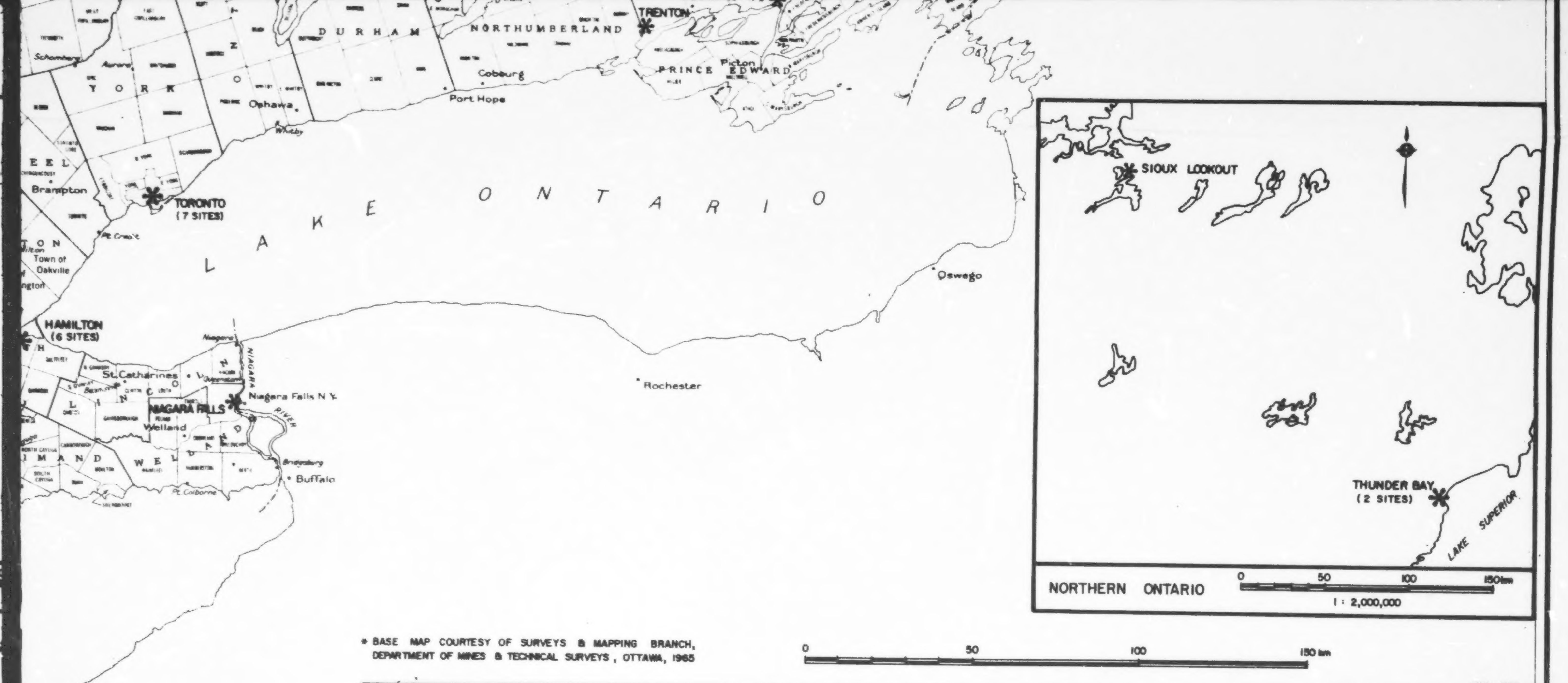
CLIENT: ONTARIO MINISTRY OF THE ENVIRONMENT
WASTE MANAGEMENT BRANCH

INTERA Technologies Ltd.
1525 Carling Avenue, Suite 600
Ottawa, Ontario, Canada K1Z 8R9

TITLE

INDUSTRIAL SITES PRODUCING AND USING COALTAR AND RELATED TARS IN ONTARIO

* - LOCATIONS OF FORMER AND ACTIVE SITES


TRENTON
DURHAM
NORTHUMBERLAND
PRINCE EDWARD
Picton
Cobourg
Port Hope
Schomberg
Aurora
YORK
ONTARIO
Oshawa
Whitby
PEEL
Brampton
TORONTO
(7 SITES)
Pt. Credit
HALTON
Town of Oakville
HAMILTON
(6 SITES)
St. Catharines
LINCOLN
NIAGARA FALLS
Niagara Falls N.Y.
Welland
WELLAND
HALDIMAND
Pt. Colborne
Niagara
Queenston
NIAGARA RIVER
Bridgeburg
Buffalo
LAKE ONTARIO
Oswego
Rochester
SIOUX LOOKOUT
THUNDER BAY
(2 SITES)
LAKE SUPERIOR
NORTHERN ONTARIO
0
50
100
150km
1 : 2,000,000
0
50
100
150 km
YLVANIA

* BASE MAP COURTESY OF SURVEYS & MAPPING BRANCH, DEPARTMENT OF MINES & TECHNICAL SURVEYS, OTTAWA, 1965

MAY, 1988

| | | | |
|---|---|---|---|
| SECTION : | CLIENT ONTARIO MINISTRY OF THE ENVIRONMENT<br>WASTE MANAGEMENT BRANCH | TITLE | B.O.M. No. |
| SCALE : 1 : 1,000,000 | | INDUSTRIAL SITES PRODUCING AND USING COALTAR AND RELATED TARS IN ONTARIO | PROJECT No. H88-013 |
| DESIGNED : | INTERA Technologies Ltd.<br>1525 Carling Avenue, Suite 600<br>Ottawa, Ontario, Canada K1Z 8R9 | | DIVISION No. |
| DRAWN : PVF | | | DRAWING NUMBER |
| CHECKED : | | * - LOCATIONS OF FORMER AND ACTIVE SITES | MAP 1 |
| APPROVED : | | | REV. |